

ORGANISERS



SAPIENZA
UNIVERSITÀ DI ROMA

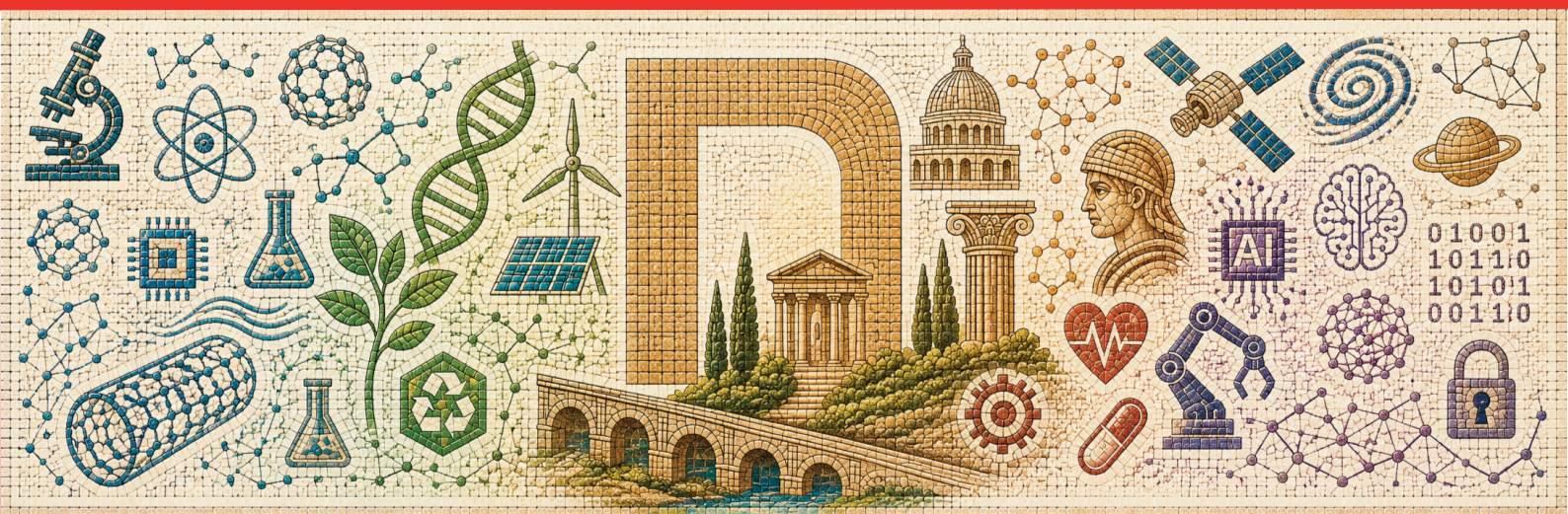
Renaissance Cloister by Sangallo
Faculty of Civil and Industrial Engineering

SEPTEMBER **14-18** 2026

Nano 2026 Innovation

Rome, 14-18 September

Conference & Exhibition



SAPIENZA
UNIVERSITÀ DI ROMA



Politecnico
di Torino



SCUOLA
NORMALE
SUPERIORE



DES
DIPARTIMENTO DI
ECCELLENZA
2023-2027



UNIMORE
UNIVERSITÀ DEGLI STUDI DI
MODENA E REGGIO EMILIA



UNIVERSITÀ DEGLI STUDI DI NAPOLI
FEDERICO II



FONDAZIONE
BRUNO KESSLER



Fondazione
Don Carlo Gnocchi



Istituto per lo Studio dei Materiali Nanostrutturati



Agenda nazionale per le nuove tecnologie,
l'energia e lo sviluppo economico sostenibile



Digital Driven Diagnostics,
prognostics and therapeutics
for sustainable Health care



ISTITUTO NAZIONALE PER L'ASSICURAZIONE
CONTRO GLI INFORTUNI SUL LAVORO



INTERNATIONAL IBERIAN
NANOTECHNOLOGY
LABORATORY



ISTITUTO NAZIONALE
DI RICERCA METROLOGICA



IENTRANCE



Vacuum Technology
and Related Solutions



MEDIA PARTNER



www.nanoinnovation2026.eu

CO-ORGANISERS

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PROGETTO GRAFICO E SITO WEB: AZIMUTH DI PATRIZIA DE CASTRO

Institutional Patronages



Scientific Patronages



Supporters



WELCOME

NanoInnovation 2026

XI Edition — Rome, 14–18 September 2026

NanoInnovation 2026 opens the conference's second decade with its eleventh edition, building on ten years of continuous dialogue, collaboration and innovation. Promoted by the NanotItaly Association and the Italian Association for Industrial Research (Airi), with the contribution of all co-organisers, supporters and partners, NanoInnovation has established itself as the national reference event for the broad, multidisciplinary community engaged in nanotechnologies and their integration with other Key Enabling Technologies (KETs).

Participation has grown steadily edition after edition, reaching more than 2,000 attendees from many countries at the 2025 conference, with around 60 symposia and workshops and over 400 speakers. This sustained growth reflects the vitality of a community that brings together leading public and private research organisations, universities, start-ups, SMEs and large industries, and that has found in NanoInnovation a unique platform to exchange ideas, transfer know-how and build collaborations across application fields as diverse as nanomedicine, energy, advanced materials and sustainability.

The 2026 edition, to be held from 14 to 18 September 2026, returns to the Renaissance Cloister by Sangallo at the Faculty of Civil and Industrial Engineering of Sapienza University of Rome. The programme will again be rich and articulated, combining symposia, workshops, training activities and networking events. Particular attention will be devoted to the legacy of the PNRR initiatives as they reach completion: the research infrastructures they have created, the challenge of sustaining them as open-access facilities for both research and industry, and the contribution of nanotechnologies to the digital and green transitions at national and European level.



NanoInnovation 2026 will:

- Provide a forum for academia, research, industry and economic stakeholders;
- Showcase cutting-edge developments in applied nanotechnology research;
- Highlight innovations in nanotechnologies and KETs for sustainable growth;
- Promote cross-disciplinary knowledge transfer and cooperation;
- Strengthen the network of research infrastructures serving the national innovation ecosystem;
- Offer training and capacity-building opportunities for young scientists and professionals.

As in every previous edition, participation in the conference programme remains free of charge, thanks to the support of numerous institutions and companies. NanoInnovation also renews its commitment to responsible research and innovation, with sustainability and societal impact as guiding principles.

Special thanks go to Sapienza University of Rome and its Faculty of Civil and Industrial Engineering for kindly hosting the conference, to the Department of Basic and Applied Sciences for Engineering for logistical and scientific support, to the Steering and Programme Committees for shaping the programme, and to all session chairs and speakers for sharing their expertise.

A warm acknowledgment is also due to the companies, organisations and institutions whose scientific and economic support has made this eleventh edition possible, and to the many people who have worked with dedication and enthusiasm to create a valuable and inspiring event.

The NanoInnovation 2026 Organizing Committee

Committees and Governance

NanolInnovation 2026 operates through a structured, multi-level governance model designed to ensure transparent decision-making, scientific excellence and effective technical and operational delivery.

The **Organizing Committee** holds ultimate decision-making responsibility for the event. Before reaching its conclusions, it consults the Steering Committee on strategic priorities and the overall direction of NanolInnovation.

The **Honorary Board** provides permanent institutional endorsement and continuity. Its members belong to a standing body supporting NanolInnovation as a whole and are not appointed separately for each edition.

The **Programme Committee** is responsible for the scientific programme. For every workshop or multi-session event, it appoints a dedicated Scientific Committee, subject to approval by the Organizing Committee. The composition of each Scientific Committee is published on the relevant workshop or event page.

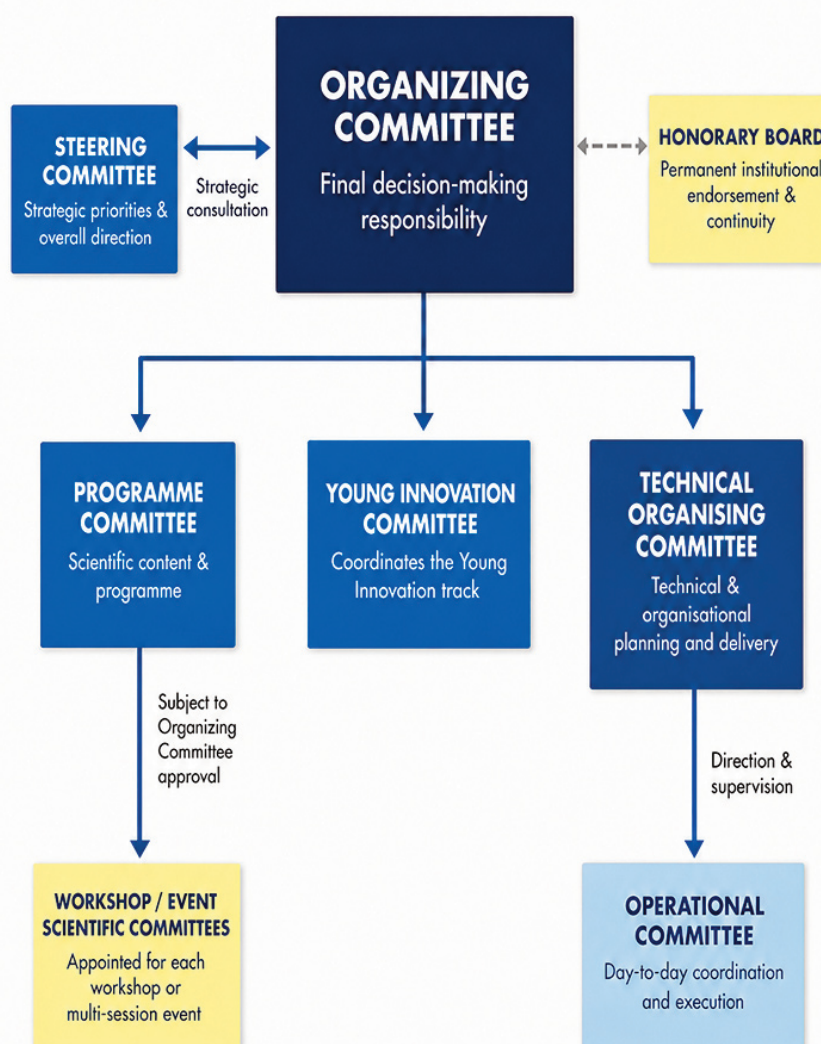
The **YoungInnovation Committee** coordinates the YoungInnovation track. Its composition is available in the dedicated section of the website.

The **Technical Organising Committee** has primary responsibility for the technical and organisational planning and delivery of NanolInnovation. It defines implementation requirements, supervises technical readiness and ensures that programme decisions are translated into effective event solutions.

Operating under the direction and supervision of the Technical Organising Committee, the **Operational Committee** manages day-to-day coordination and execution. It implements the established priorities and coordinates the practical activities required for the efficient delivery of the event.

→ For the complete list of committees and their members, please refer to the sections below.

COMMITTEES AND GOVERNANCE



The Organising Committee is the decision-making body of NanoInnovation. It holds final authority on all matters relating to the event — strategic, scientific and operational.

Decisions are taken by the Organizing Committee after consultation and discussion with the Steering Committee, ensuring that strategic choices reflect a broad range of expertise and perspectives.

The Organising Committee oversees all other committees, manages institutional partnerships and sponsorships, and guarantees the coherence and successful delivery of NanoInnovation.



Marco ROSSI (*chair*)

- Sapienza University of Rome



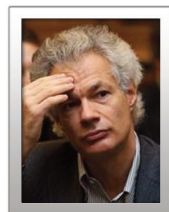
Vittorio MORANDI

- CNR-ISMN



Massimo BERSANI

- FBK



Candido Fabrizio PIRRI

- Polytechnic University of Turin



Davide CALONICO

- INRIM



Andrea PORCARI

- AIRI



Franco CARDONE

- ISS



Giovanni TOSI

- University of Modena and Reggio Emilia

Steering Committee

The Steering Committee plays a key advisory and strategic role in NanoInnovation. It provides expert input, raises critical questions and contributes to shaping priorities across all dimensions of the event.

Discussions within the Steering Committee are actively considered by the Organizing Committee when making decisions, ensuring that strategic choices are informed by a wide range of expertise and stakeholder perspectives.

The Steering Committee also strengthens external relations and aligns the event with emerging trends in research, innovation and industry.



Donatella PAOLINO (*chair*)

- Magna Graecia University of Catanzaro



Giulio LAMEDICA

- ZEISS



Marzia BEDONI

- Don Gnocchi Foundation



Nicola LISI

- ENEA



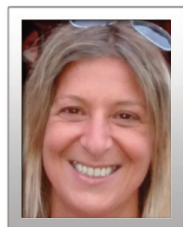
Luca BOARINO

- INRIM



Leandro LORENZELLI

- FBK



Beatrice BOCCA

- ISS



Margherita MORENO

- ENEA



Fabio BOCCUNI

- INAIL



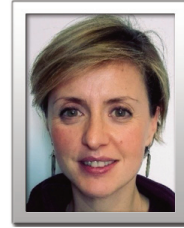
Pasqualantonio PINGUE

- Scuola Normale Superiore (SNS), Pisa



Giuliana FAGGIO

- The "Mediterranean" University of Reggio Calabria



Marzia QUAGLIO

- Polytechnic University of Turin



Barbara RUOZI

- University of Modena and Reggio Emilia



Francesco SALVATO

- AIRI



Annarita STRINGARO

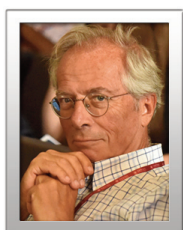
- ISS

Programme Committee

The Programme Committee is responsible for the scientific content of NanoInnovation. It defines thematic areas, coordinates sessions and workshops, selects speakers, and ensures the overall quality, coherence and impact of the programme. Scientific directions are developed by the Programme Committee and submitted to the Organizing Committee for final approval, following discussion with the Steering Committee.

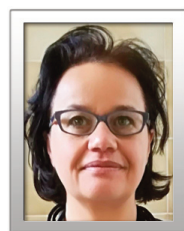
For each workshop and multi-session event, the Programme Committee appoints a dedicated Scientific Committee, subject to approval by the Organizing Committee. The composition of each Workshop Scientific Committee is available in the respective workshop page within the Programme section.

The coordination of the Young Innovation track — including schools, PhD sessions and activities for early-career researchers — is entrusted to a dedicated Young Innovation Committee. Full details are available in the Young Innovation section of the Programme.



Marco VITTORI ANTISARI
(co chair)

- Nanotally Association APS



Rosa CHIERCHIA

- ENEA



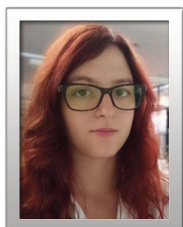
Pietro Aleardo SICILIANO
(co chair)

- Nanotally Association APS



Francesco CUBADDA

- ISS



Alessia AIRI

- INRIM



Antonio D'ALESSANDRO

- Sapienza University of Rome



Michela ALFE'

- CNR - STEMS



Natascia DE LEO

- INRIM



Cristina ANDREOLI

- ISS



Luciano DE SIO

- Sapienza University of Rome



Annarica CALCABRINI

- ISS



Danilo DINI

- Sapienza University of Rome



Jason Thomas DUSKEY

- University of Modena and Reggio Emilia



Riccardo FERRANTE

- INAIL



Valentina GARGIULO

- CNR - STEMS



Sara HEJAZI

- FBK



Arzum ISITAN

- FBK



Nicola LISI

- ENEA



Giacomo MESSINA

- The "Mediterranean" University of Reggio Calabria



Ilaria OTTONELLI

- University of Modena and Reggio Emilia



Donatella PIETRAFORTE

- ISS



Maria Elena PISANU

- ISS

Technical Organising Committee

The Technical Organising Committee is the leading body responsible for the technical and organisational planning of NanoInnovation. It defines operational requirements and quality standards, oversees technical infrastructure and services, and supervises the overall preparation and delivery of the event.

It provides direction to the Operational Committee, validates key implementation decisions and ensures that programme requirements are translated into effective and reliable technical solutions.



Giulia
FAMÀ



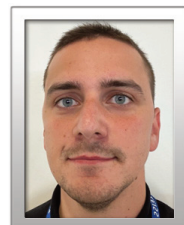
Valerio
NARDONE



Eugenio
VALORANI



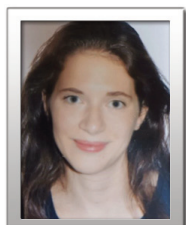
Anacleto
PROIETTI



Luca
BUCCINI



Angelica
ACCORINTI



Elena
STELLINO



Gianluca
SBARDELLA



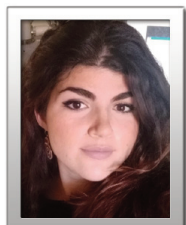
Maura
MANCINELLI



Luca
CASSANITI



Simone
BANDINI



Martina
BERNABALE



Roberto
COLARELLI



Elena
TOMASELLI



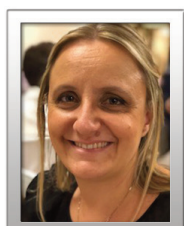
Corrado
DI CONZO



Marco
DI PILATO



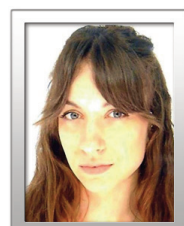
Alessandro
FRANCHI



Paola
DI MATTEO



Pierfrancesco
ATANASIO



Ginevra
ROSSETTI



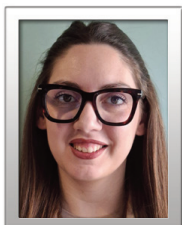
Francesco
MURA

Administration & Secretariat	Giulia FAMÀ	Secretariat & general administration, Coordination with co-organisers, speakers and auditors
	Valerio NARDONE	Registration procedures
	Eugenio VALORANI	Collaboration with press agency and media partners
Programme & Event Coordination	Anacleto PROIETTI	On-site coordination and staff management
	Luca BUCCINI	On-site coordination & Integration with the flagship initiatives YoungInnovation
	Angelica ACCORINTI	
	Elena STELLINO	
	Gianluca SBARDELLA	Stage and stand setup supervision
	Maura MANCINELLI	Programme, speaker and exhibitors coordination and management
	Luca CASSANITI	
	Simone BANDINI	
	Martina BERNABALE	Poster session organisation
	Roberto COLARELLI	
	Elena TOMASELLI	
	Corrado DI CONZO	IT and technical support (badges, systems, troubleshooting)
	Marco DI PILATO	
	Alessandro FRANCHI	
	Paola DI MATTEO	
On-Site Operations & Logistics	Pierfrancesco ATANASIO	Reception & participant assistance
	Ginevra ROSSETTI	
	Francesco MURA	

Operational Committee

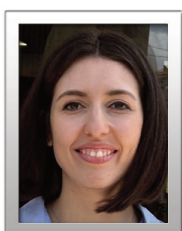
The Operational Committee operates under the direction and supervision of the Technical Organising Committee. It supports the day-to-day coordination and practical execution of NanoInnovation, implementing the priorities, guidelines and operational decisions established by the Technical Organising Committee.

It monitors timelines, coordinates assigned activities and facilitates interaction between programme development, sponsorship, communication, registration and logistics, ensuring that all tasks are completed efficiently and on schedule.



Marilena CIMEI

- Sapienza University of Rome



Alessia FIORE

- ISS



Parisa NAZAR

- Sapienza University of Rome



Taljinder SINGH

- INAIL



Julio Andres ZANON

- Sapienza University of Rome

The Honorary Board of NanoInnovation brings together distinguished figures from academia, research institutions and industry who lend their authority and prestige to the event.

The Honorary Board is a permanent body of NanoInnovation as an event — its members are not appointed for individual editions.



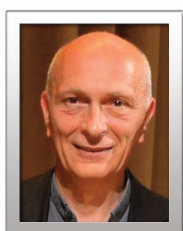
Pietro ASINARI

- INRiM
President



Giorgio GRADITI

- AREA Science Park
General Director



Don Vincenzo BARBANTE

- Don Gnocchi Foundation
President



Antonella POLIMENI

- Sapienza University of Rome
Rectress



Rocco BELLANTONE

- ISS
President



Francesco PRIOLO

- University of Catania
former Rector (2019-2025)



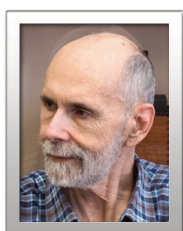
Fabio BELTRAM

- Scuola Normale Superiore - SNS
National Quantum Science and
Technology Institute (NQSTI),
Coordinator



Ferruccio RESTA

- FBK
President



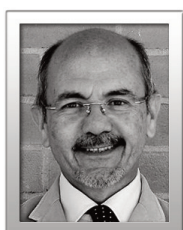
Marco CRESCENZI

- Scientific Writer, former ISS
Research Director



Francesco SETTE

- *former ESRF General Director and
Chair of the F4E Governing Board*



Giovanni CUDA

- University "Magna Graecia" of
Catanzaro
Rector



Giuseppe ZIMBALATTI

- The "Mediterranean" University of
Reggio Calabria
Rector



Fabrizio D'ASCENZO

- INAIL
President

AIRI



Airi is a non-profit private organization, founded in 1974. Its mission is to promote industrial Research and Innovation and co-operation between the private and public sectors, to enhance the Italian competitive position. Airi's members are large industrial enterprises and SMEs, universities, public research institutions, technology clusters and financial organizations. Due to its broad representative base, Airi is acknowledged as a key opinion leader in Technology forecasting and Research-policy design.

Since 1995, Airi publishes a reference foresight and technology assessment report on innovative, industrial technologies in Italy, based on the work of 250+ R&D professionals. The XI edition of *Le Innovazioni del Prossimo Futuro* has been published in May 2025 (free download available on our website).

Airi works in close collaboration with a wide network of national and EU R&I players covering several application sectors, such as materials and chemicals, construction, environment, energy, healthcare, ICT and microelectronics, transport, aerospace, and advanced manufacturing. Over the past 20 years, Airi has been active in participating in EU, national and regional initiatives and cooperative projects, and organizing multi stakeholder dialogues and networking events.

Key areas of action include:

- Technology foresight on emerging and enabling technologies
- Advocacy on R&I policies, incentives, norms, and standards
- Innovation and project management
- Promoting STEM skills and education
- Co-creation and open innovation practices
- Responsible innovation, safety and sustainability by design
- Exploitation, dissemination, communication

Read about Airi members, projects, publications, events and initiatives on www.airi.it

Nanotaly Association



The Nanotaly Association has been established with the aim of promoting, enhancing and supporting the role of bio-nano technologies in the Italian and European societies in all applicative, social and economic contexts, with particular reference to the development of technologies of industrial interest and to the social impact on the population of product innovations based on nano aspects.

Nanotaly is a cultural non-profit, non-political association, organized on the sovereignty of the members' assembly and whose corporate offices are elective and held without charge.

The main purpose of the Association is to promote and support the integration of the scientific and industrial communities in relation to the wide field of bio-nano technologies, composed of researchers, technologists and professionals from public research and industrial laboratories, in order to discuss innovative ideas, exchange knowledge and enhance transfer of know-how, in order to allow the integration of ideas and knowledge between different areas of application.

We strongly believe that the encounter and integration of scientific and technological communities traditionally separated from each other to build a new reality able to define new goals and influence the transfer of skills and knowledge from laboratories to businesses and markets, is an absolute need for a profitable development of nanotechnology in our country.

The Association aims to support and encourage collaboration between research institutions and industry, in order to jointly contribute to the regional, national and European programs, to promote the creation of research networks and infrastructure for the needs of research in nano-bio-technology and nanoscience.

The Association membership is open to both individuals and organizations interested in the development of the variegated world of nano-bio-technology.

For more information and to join please visit the Association website: www.nanoitalyassociation.org

SAPIENZA UNIVERSITY OF ROME

*The Largest University in Europe
The Oldest University in Rome*

Sapienza University of Rome, founded in 1303 by Pope Boniface VIII, is one of the oldest universities in the world and a high performer among the largest universities in international rankings. It is the first University in Rome and the largest University in Europe: a city within a city, with over 700 years of history. With more than 115,000 students, more than 3,300 professors and nearly as many administrative and technical staff, Sapienza represents a vast community of knowledge, with more than 18,000 graduates per year.

Since its establishment over 700 years ago, Sapienza has played an important role in Italian history and has been directly involved in key changes and developments in society, economics and politics. It has contributed to the development of Italian and European science and culture in all areas of knowledge.

The University offers a wide range of courses including 290 degree programmes, over 80 PhD courses, over 200 professional courses and 120 Specialization Schools in Medicine and Health, run by 58 Departments, 2 Hospitals and 11 Faculties. There are 59 libraries and 21 museums, as well as comprehensive student services. The student body includes over 10,000 enrolled international students from all over the world. Ciao and Hello (the welcoming centre for foreign students), SoRT (Counselling and tutoring services) and assistance for disabled students.

Sapienza plans and carries out important scientific investigations in almost all disciplines, achieving high-standard results both on a national and on an international level, thanks to the work of its faculties, departments and centres devoted to scientific research. Sapienza has active partnerships with other universities in 86 countries and 1422 international cooperation agreements. The first University in Rome is proud to have had many famous scholars among his students. Dealing with the field of Physics' students, members of the so called 'Via Panisperna' group – including the scientists Enrico Fermi, Edoardo Amaldi and Emilio Segrè – gave a crucial contribute to Physics and left an important heritage in subjects like Quantum Physics, Physics of Disordered Systems and Astrophysics. Sapienza enhances research by offering opportunities also to international human resources. Thanks to a special programme for visiting professors, many foreign researchers and professors periodically come to Sapienza, consolidating the quality of its education and research programmes. 21 disciplines ranked in the last Top 100 QS World University Ranking.

Sapienza University of Rome is a public, autonomous and free university, involved in the development of society through research, higher level of education and international cooperation.

The future of Sapienza starts today thanks to its rich past and the contribution of the entire University community.

Faculty of Civil and Industrial Engineering

The Faculty was founded in 1817 by Pope Pius VII, following the model of the most famous Parisian and Viennese School of Engineering of the time; in 1935, due to the Gentile's reform, the School became the Faculty of Engineering. The Faculty was founded with the aim of training professionals with a high cultural background, qualified to meet the real needs of training and research companies, possessing the ability to promote and to develop technological innovation processes in different cultural environments. The ancient Faculty of Engineering has a long educational tradition that is appreciated all over the world. This rich experience has allowed the Faculty to offer a very innovative syllabus today, including also a specific program on Nanotechnology Engineering. It aims in particular to meet local engineering needs, but also to prepare graduates for employment in an increasingly globalised and international job market. Recently, a more general internal reorganization of Sapienza required a thematic splitting of the research and teaching activity, with the consequent creation of the new Faculty of Civil and Industrial Engineering, the headquarter of which remained in the pristine site, and of the new Faculty of Information Engineering, Informatics and Statistics.

The Faculty of Civil and Industrial Engineering is spread among various buildings in the area of via Eudossiana, the most representative is the old monastery of the church of San Pietro in Vincoli (San Peter in Chains), also known as basilica Eudossiana, but educational and scientific activities are also held in other locations in Rome and Lazio, like Latina and Rieti.

An ancient tale

An ancient tale connects the name of Eudossia and San Pietro in Vincoli: the empress Elia Eudocia, wife of Teodosio II (408-550), emperor of the Eastern Roman Empire, sent from Costantinopoles to her daughter Eudossia part of the chains ("vincoli") of San Peter which she found in Jerusalem. These chains were donated to the Pope Leone Magno. He put them close to those that hold San Peter during his roman imprisonment, and the miracle happened: The two chains melted together.



CNIS - SNN Lab

Research Centre for Nanotechnology applied to Engineering of Sapienza University of Rome

(Centro per le Nanotecnologie applicate all'Ingegneria di Sapienza Università di Roma)

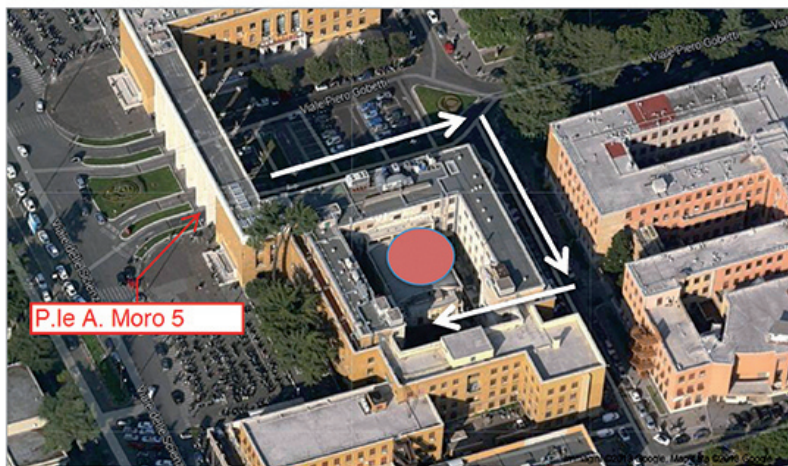


The CNIS was established in 2006, and now involves more than 90 professors and researchers, from different Departments of the Faculties of Engineering, Sciences and Medicine. The vision and goal of CNIS is to embrace and support a multidisciplinary user base of researchers of Sapienza and co-workers of other universities or private laboratories. CNIS activities are now developed in the new (2012) Sapienza Nanotechnology & Nanoscience Laboratory (SNN Lab), the core-facility at Sapienza dedicated to nanoscience and nanotech multidisciplinary applications in materials science, life sciences, engineering and solid state physics. It brings together state-of-art instrumentation for nanotechnology with an experienced staff that will perform the structural and functional characterization of all the materials, devices and systems in the framework of the foreseen project activities.

In particular, a wide range of microscopy and nanoscopy techniques are available. The facility also offers our users a variety of sample preparation equipment, a light microscopy lab with image analysis, an X-ray lab, and a materials testing lab.

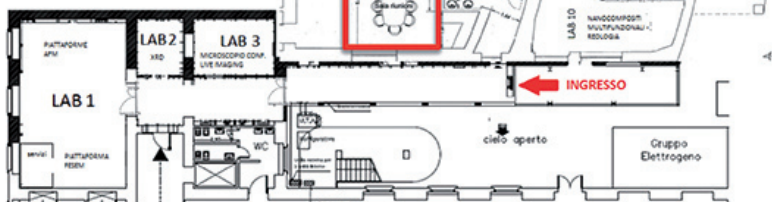
The SNN-Lab is finalized to:

- Integrate the multidisciplinary skills available at Sapienza University in the fields of nanotechnology and nanosciences, with the aim of creating synergies between research groups operating in different areas of science, engineering, medicine.
- Constitute a research infrastructure at Sapienza supportive the design, realization and characterization of nanostructures and innovative micro/nano-devices for different fields of applications.
- Provide instrumentation and services for high quality research in the field of: micro/nano-fabrication, micro/nano-manipulation, advanced characterization (functional and structural microscopy) of the chemical-physical properties of micro/nanostructured materials, engineerization of the designed micro/nanostructured devices and systems, nanomedicine and genomics.
- Create a reference structure for "the territory" and enterprise, responding to the research and technological development needs of the research programs at regional, national and international levels.



Total Area: 400 mq
Installed power: 168 kW

- Microscopies and characterizations at nanoscale: LAB 1, 2, 3
- Nanofabrication: LAB 5, 10
- Processing and chemistry: LAB 6, 7
- Genomics and bioinformatics: LAB 4, 8, 9
- Meeting room



The SNN-Lab has also been made possible thanks to the funding from the Lazio region to promote innovation and technological transfer. The Lab is located on the main campus of Sapienza University in an area of 400 mq.

More information on: <https://cnis.web.uniroma1.it/>

SNN Lab – CNIS

Sapienza University of Rome, P.le A. Moro n. 5 - 00185 Rome

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NANOINNOVATION 2026

Core Tracks

Monday 14	Tuesday 15	Wednesday 16	Thursday 17	Friday 18
Affiliated Forums	09:00 - 11:00	09:00 - 10:30	09:00 - 10:30	09:00 - 10:30
	Welcome & Opening Session	Multi-track sessions & Workshops Featured Events & more	Multi-track sessions & Workshops Featured Events & more	Multi-track sessions & Workshops Featured Events & more
		10:30 - 10:50		
	11:00 - 11:30	10:50 - 11:30	10:50 - 11:30	10:50 - 11:30
		Parallel Lectures	Parallel Lectures	Parallel Lectures
	11:30 - 13:00	11:30 - 13:00	11:30 - 13:00	11:30 - 13:00
	Round table	Multi-track sessions & Workshops Featured Events & more	Multi-track sessions & Workshops Featured Events & more	Multi-track sessions & Workshops Featured Events & more
	13:00 - 14:00			
	14:00 - 18:30	14:00 - 15:30	14:00 - 15:30	14:00 - 15:30
	Scientific Plenary Sessions	Multi-track sessions & Workshops Featured Events & more	Multi-track sessions & Workshops Featured Events & more	Multi-track sessions & Workshops Featured Events & more
		15:30 - 16:00		
		16:00 - 17:30	16:00 - 17:30	16:00 - 17:30
		Multi-track sessions & Workshops Featured Events & more	Multi-track sessions & Workshops Featured Events & more	Multi-track sessions & Workshops Featured Events & more
	17:30 - 20:00	17:30 - 20:00	17:30 - 20:00	
	Social Events	Social Events	Social Events	

Exhibition, Satellite Events, Poster Session, Demo events

FROM DISCOVERY TO TRANSLATION: INTEGRATING FAST-TRACK INNOVATION, ADVANCED DELIVERY SYSTEMS, AND DATA-DRIVEN PRECISION NANOMEDICINE

Chair: in definition

Co-organized with



This workshop, organised by the Italian Nanomedicine Platform, brings together leading researchers, innovators, and industry stakeholders in the field.

The event highlights projects from platform members while fostering interaction with the broader scientific and economic ecosystem interested in nanomedicine. Renowned key speakers will provide high-level insights into current challenges and emerging opportunities.

Covering the full innovation pipeline—from targeting and advanced delivery systems to tech transfer, scale-up, regulatory pathways, and data-driven precision approaches—the workshop offers a unique platform to connect discovery with real-world application and impact.

The **Italian Nanomedicine Platform (INP)** brings its conversation to NanoInnovation 2026. On **September 14th**, join the affiliated forum where science meets strategy and ideas move closer to real-world impact.

Across four dedicated sessions, the forum will unite researchers, innovators, and industry stakeholders to cover the full nanomedicine innovation pipeline:

- **Targeting, Delivery & Biomaterials**
- **Fast-Track Discovery, Early Tech Transfer & Advanced Characterisation**
- **Engineering, Late-Stage Tech Transfer & Regulatory Affairs**
- **Precision Nanomedicine, Omics & Data Integration**

Forum participants can submit a poster abstract for a dedicated INP poster session on September 14th - and enjoy a 30% discount on submissions to the main NanoInnovation poster session.

Registration fee: € 60 + VAT.

To sign up and access the full programme, payment options, and submission guidelines, visit the dedicated page on the NanoItaly Association website:

www.nanoitalyassociation.org



Session I
Targeting, Delivery & Biomaterials
09:00 - 10:30

Chair: in definition

This session focuses on advanced strategies to enhance therapeutic performance through selective targeting, innovative drug delivery systems, and next-generation biomaterials. Emphasis will be placed on understanding bio-material interactions, including biodistribution, biocompatibility, and efficacy.

Calogero FIORICA, *University of Palermo*

Chemically Programmable Wet-Electrospun Pullulan based Fibers for Multifunctional 3D Regenerative Scaffolds

in definition

in definition

in definition

Session II
Fast-Track Discovery, Early Tech Transfer & Advanced Characterization
11:00 - 12:30

Chair: in definition

Dedicated to accelerating the path from fundamental research to early application, this session covers rapid screening technologies, advanced in vitro and in silico models, and cutting-edge characterization techniques. It also addresses early-stage tech transfer, from proof-of-concept to IP generation and valorization.

Graciana DIEZ ROUX, *Scientific Director at Fondazione Telethon*

Fondazione Telethon: Advancing research from basic science to clinical application

María DE LA FUENTE, *Co-founder and CEO Diversa*

The role of industry in translating nanomedicine. The value of SMEs

in definition

in definition

Session III Engineering, Late-Stage Tech Transfer & Regulatory Affairs 14:00 - 15:30
Chair: in definition
This session explores the transition toward industrial and clinical implementation, including process engineering, scale-up, and standardization. Key topics include late-stage tech transfer, industry collaboration, and regulatory strategies such as EMA/FDA frameworks, Quality by Design, and clinical approval pathways.
PANELISTS
Eleonora AGRICOLA <i>Innovation and Scientific Advice EMA & Agenzia Italiana del Farmaco - AIFA</i> Title in definition
Charalampos KOUTSOULAS <i>Director QA Protein Modality BioNtech</i> From Bench to GMP: Applying Quality by Design for Successful Translation
in definition
in definition

Session IV Precision Nanomedicine, Omics & Data Integration 16:00 - 17:30
Chair: in definition
Focusing on data-driven and personalized approaches, this session highlights the integration of omics data and the use of AI and computational tools for target identification, nanomedicine optimization, and predictive modeling.
in definition
in definition
in definition
in definition

14:00 - 17:30

Affiliated Forum II

ADVANCED MATERIALS AND ENABLING TECHNOLOGIES SERVING THE NEW FRONTIERS OF SPACE AND LIFE BEYOND EARTH

Chairs: Mirko ROCCI, *Thales Alenia Space* & Alessandro GARIBBO, *Leonardo* (to be confirmed)

A Joint Thales Alenia Space / Leonardo Forum @ NanolInnovation 2026



SCIENTIFIC COMMITTEE

Alessandro GARIBBO, *Leonardo*

Mirko ROCCI, *Thales Alenia Space*

Walter PECORELLA, *Thales Alenia Space*

Pasqualantonio PINGUE, *SNS, Pisa*

Space is one of the most demanding environments for materials. Extreme thermal gradients, radiation exposure, mechanical stress, and tight mass budgets push the boundaries of what existing materials can do — and define much of the research agenda for the next generation of space systems.

This joint Forum by Thales Alenia Space and Leonardo brings together PhD researchers working at the intersection of materials science and industrial space applications. The Forum draws primarily on work conducted within PNRR-funded industrial doctoral programmes — a scheme that places researchers directly inside company environments, working alongside engineering teams on real industrial challenges. This context shapes the nature of the contributions: they are not purely academic studies, but research developed in close contact with product lines and technology roadmaps. The session also welcomes contributions from doctoral researchers active at Thales Alenia Space or Leonardo under other frameworks, provided the work addresses space materials with a clear industrial dimension.

Topics covered include nanomaterials and advanced composites, thermal protection systems, electromagnetic shielding, and structural materials for lightweight architectures. Alongside these core engineering themes, the session also touches on an increasingly relevant frontier: materials that support human presence in space — from radiation-shielding solutions for crewed habitats to multifunctional materials designed for life support and long-duration mission environments. As human spaceflight moves from low Earth orbit toward the Moon and beyond, this class of materials is becoming a concrete industrial priority, not a distant research horizon.

The Forum focuses on results — what has been achieved, what it means in practice, and where the research is heading beyond the current funding horizon. Several contributions also address how materials originally developed for space translate into terrestrial applications, from energy systems and advanced mobility to sustainable manufacturing and healthcare.

Coordinated by a joint Thales Alenia Space / Leonardo scientific committee, the Forum reflects a shared commitment by both companies to doctoral research as a strategic tool for long-term technological development — and a model of structured industry collaboration that extends well beyond any single funding programme.

SESSION I

14:00 - 15:30

Alice Nicole CASLING, *Sapienza University of Rome*

Multilayer Panels Incorporating GNP/CIP-Loaded Paints for S-Band EMI Absorption in Space Environments

in definition

Simone BANDINI, *Sapienza University of Rome*

Non-destructive assessment of lead-free SAC305 solder joints evolution under space relevant ageing conditions, with an outlook on the thermal behaviour of FLG-doped technopolymers

in definition

Session II 16:00 - 17:30

Lorenzo FERRI, *Sapienza University of Rome*

Polyimide-Based Nanocomposite Coatings for Large Deployable Reflector (LDR) antennas: Solvent Processing, Filler Dispersion and Functional Characterization

in definition

Annalisa DI TUORO & Andrea MAZZILLO, *Sapienza University of Rome*

State of the art on the use of nanomaterials to improve the transverse tensile strength of a CFRP

in definition



11:00 - 17:00

Affiliated Forum III

APPLICATION WORKSHOP ON DIGITAL AND 3D CONFOCAL MICROSCOPY AND LASER PROBE PROFILOMETRY WITH NANOMETRIC RESOLUTION

Organized with



During the workshop, advanced solutions for surface and three-dimensional characterization of any material at macro, micro, and nano scale will be presented. There will be practical demonstrations of ultra-high-resolution inspection and imaging, 2D/3D metrological analysis, and roughness measurement. Participants will be able to bring their own samples and analyze them together with Simitecno specialists, directly evaluating the possible applications of the presented technologies.

11:00 – 17:00 (lunch break 13:00 – 14:00)

PROGRAMME

11:00 – 12:00	Introduction and overview of the technologies
12:00 – 13:00	Live demonstrations
13:00 – 14:00	Lunch break
14:00 – 17:00	Hands-on session — analysis of participants' samples

BRING YOUR OWN SAMPLE

The afternoon session is dedicated to samples brought by participants. Places are limited: indicate the type of material and the measurement of interest when registering.

TECHNOLOGIES ON SITE

Hirox 3D Digital Microscope: microscope for 360° imaging without sample manipulation, enabling high-resolution multiscale 2D/3D scanning and measurements, with magnification up to 10,000x.

NPS Confocal Profilometer: white-light chromatic confocal profilometer for high-resolution, non-contact scanning of surface profiles, with Z-axis resolution down to 76 nm. It can analyze virtually any surface, including reflective, mirrored, and transparent surfaces, and enables certified surface roughness measurements.

Mitaka Laser Profilometer: high-precision laser profilometer with 1 nm Z-axis resolution. The 0.5 µm laser spot, combined with high-precision motorized XY axes, enables real-time 3D profile measurement of virtually any type of surface, avoiding optical collimation errors associated with focal planes.

CALL TO ACTION

Information and registration at this forum (handled by Simitecno)

NanolInnovation registration is mandatorily required for access to the venue.

FORUM PNRR SAPIENZA**Il futuro dell'innovazione in Sapienza: dall'innovazione didattica alla ricerca, fino al trasferimento tecnologico****Risultati ed eredità dei progetti PNRR**

Con Tavola rotonda moderata da Maurizio MELIS

Chair: Carlo Massimo CASCIOLA, *Preside Facoltà Ingegneria Civile e Industriale*

Organised by

**SAPIENZA**
UNIVERSITÀ DI ROMA**Il contesto**

L'edizione 2026 conferma la presenza di momenti di dibattito e di confronto, articolati su format differenziati — dalle sessioni plenarie ai workshop tematici (quali Open Science e Open Innovation), fino alle sessioni YoungInnovation dedicate a ricercatrici e ricercatori under 35 — nei quali l'elemento caratterizzante è la presenza di tavole rotonde, momenti elettivi di discussione e confronto. Novità assoluta di quest'anno è il Forum PNRR Sapienza, che si terrà il pomeriggio di lunedì 14 settembre e si concluderà con la tavola rotonda qui proposta.

Lo scopo

La sessione attraversa, nell'arco di un pomeriggio, l'intero ciclo dell'innovazione, che coinvolge didattica, ricerca, trasferimento tecnologico. Il filo conduttore è quello delle opportunità offerte dalle progettualità PNRR e della loro valorizzazione nell'era del post-PNRR, con riferimento ai diversi ambiti di intervento che hanno visto coinvolto il mondo della ricerca e delle imprese: da quello della formazione e delle competenze del futuro (Missione 4, Componente 1), a quello della ricerca — fondamentale e applicata — e del suo scale-up, del trasferimento tecnologico e del rapporto con il sistema produttivo (Missione 4, Componente 2), attraverso gli investimenti relativi agli ecosistemi di innovazione, ai partenariati estesi, ai centri nazionali e alle iniziative del piano nazionale complementare. L'altro pilastro della Componente 2 — le infrastrutture di ricerca — è oggetto della mezza giornata di martedì 15 settembre, alla quale il pomeriggio del lunedì fa da premessa. Il pomeriggio è articolato in quattro sessioni tematiche. La prima è dedicata all'innovazione didattica e alle competenze abilitanti (intelligenza artificiale nella didattica, università digitale, lifelong learning, Open Badge e Open Education). Le tre successive coprono le aree in cui i progetti PNRR dell'Ateneo hanno concentrato i maggiori investimenti: la transizione digitale, con l'intelligenza artificiale, le tecnologie quantistiche, il supercalcolo e lo spazio; l'energia, il clima e l'ambiente, la sostenibilità e i beni culturali; la salute, il benessere, l'invecchiamento e la nutrizione. Le quattro sessioni sono articolate per area tematica (e non per linea di intervento): ciascuna attraversa più strumenti del PNRR e mostra che cosa, in quel campo, è stato costruito e che cosa ne resta. Su questa base fattuale si innesta, in chiusura di giornata, la tavola rotonda, il cui panel vedrà anche la presenza di una selezione dei relatori proveniente dalle quattro sessioni, che portano al tavolo l'evidenza raccolta nel pomeriggio; a questi si affiancheranno ulteriori personalità del mondo universitario e della ricerca, delle istituzioni e del sistema produttivo, la cui composizione sarà definita e comunicata nelle prossime settimane. La scelta di organizzare un Forum PNRR Sapienza non ha intento celebrativo. A ridosso della conclusione dei programmi PNRR, la domanda che ci si pone è: qual è l'eredità del PNRR e come tale eredità può essere trasformata in volano di crescita per il futuro? Laboratori attrezzati, piattaforme per la didattica innovativa, dottorati innovativi, personale tecnico e tecnologico reclutato a tempo determinato esistono oggi grazie a risorse straordinarie destinate a esaurirsi. Trasformare quel patrimonio in capacità ordinaria dell'Ateneo è una scelta di governance, non un automatismo: ed è precisamente su questo terreno che il Forum intende sollecitare un confronto pubblico, aperto e documentato fra ricerca, imprese e istituzioni. L'iniziativa risponde a una duplice ambizione: da un lato, aprire all'esterno — alla comunità scientifica, industriale e istituzionale, nazionale e internazionale, che partecipa a NanoInnovation — il dibattito con cui la Sapienza costruisce il proprio futuro, testimoniandone l'apertura e la trasparenza; dall'altro, raccogliere stimoli, domande e prospettive provenienti da un pubblico esterno all'Ateneo, espressione dell'ecosistema dell'innovazione con cui l'Università è chiamata a dialogare. La tavola rotonda si prefigge di essere un'occasione di riflessione pubblica, aperta e trasparente sul futuro dell'innovazione alla Sapienza.

Funzione propedeutica rispetto alla sessione di martedì mattina

Il Forum PNRR Sapienza del lunedì pomeriggio e le sessioni plenarie di martedì mattina 15 settembre — con la tavola rotonda «Research Infrastructures at Work», dedicata all'impatto delle infrastrutture di ricerca su tecnologie avanzate, industria e life sciences — formano un dittico deliberato e vanno letti in sequenza. Il lunedì pomeriggio assume la prospettiva dell'istituzione universitaria: che cosa i programmi PNRR hanno prodotto in termini di competenze abilitanti, innovazione didattica, ecosistemi dell'innovazione e trasferimento tecnologico, e con quali strumenti di governo se ne consolida l'eredità. Il martedì mattina rovescia la stessa domanda dal lato delle capacità operative e della domanda industriale: le infrastrutture di ricerca, ora pienamente a regime, stanno generando impatto misurabile sul sistema produttivo, sui percorsi clinici e sulla competitività del Paese? Il lunedì pone dunque la questione della sostenibilità istituzionale; il martedì ne verifica il rendimento sistemico. Due dispositivi rendono operativo il raccordo: la consegna, in chiusura del lunedì, delle domande aperte alla sessione del giorno successivo; e l'affidamento di entrambe le tavole rotonde allo stesso moderatore (Maurizio Melis), che consente di richiamare esplicitamente, in apertura di martedì, gli elementi emersi la sera precedente.

Temi ipotizzati per la tavola rotonda

I temi seguenti sono meramente indicativi e interamente aperti a integrazioni, riformulazioni o sostituzioni da parte dei relatori e dei panelist.

- **Innovazione didattica e competenze abilitanti.** Intelligenza artificiale nella formazione, università digitale, lifelong learning, Open Badge e Open Education, lauree professionalizzanti e dottorati innovativi: quale assetto stabile dopo l'esaurimento delle risorse straordinarie?
- **Dalla ricerca fondamentale al trasferimento tecnologico.** L'intera filiera — ricerca fondamentale, ricerca applicata, scale-up tecnologico — e gli strumenti che la sostengono: qualità e libertà della ricerca di base come preconditione, brevetti, spin-off e start-up, rapporto strutturato con le imprese, ruolo della Sapienza nelle progettualità PNRR, attrazione di talenti e di finanziamenti europei.
- **Governance, personale e semplificazione.** Valorizzazione delle professionalità tecniche e tecnologiche formate dai progetti, messa a regime dell'eredità PNRR nella programmazione ordinaria di Ateneo, semplificazione amministrativa a supporto della ricerca.
- **Tecnologie abilitanti.** Nanotecnologie, materiali avanzati, micro e nanoelettronica, fotonica, biotecnologie e intelligenza artificiale — cuore tematico di NanoInnovation — come terreno di verifica concreta delle strategie di Ateneo.

Il tema delle infrastrutture di ricerca non figura fra quelli proposti per questa tavola rotonda: costituisce l'oggetto esclusivo della tavola rotonda nella sessione di martedì mattina. Ai quattro temi si aggiungono le domande consegnate dalle sessioni del pomeriggio, che ne costituiscono l'innescio fattuale.

Programma (in definizione)

Orario	Lunedì 14 settembre 2026 - pomeriggio - Aula 1 e Chiostro
13:30	Registrazione dei partecipanti e accredito
14:00	Saluti e interventi istituzionali
	Carlo Massimo CASCIOLA Preside della Facoltà di Ingegneria Civile e Industriale, Sapienza Università di Roma Interventi istituzionali in definizione
14:20	L'ecosistema territoriale dell'innovazione e le opportunità di finanziamento
	Luciano GALANTINI, Sapienza Università di Roma Infrastrutture per la ricerca e l'innovazione di Sapienza e l'esperienza di Rome Technopole
	Interventi istituzionali in definizione
15:00	Sessione I - Innovazione didattica e competenze abilitanti
	Simone SCARDAPANE, Sapienza Università di Roma Oltre i chatbot: costruire competenze per l'IA nella didattica universitaria
	Luca IOCCHI, Sapienza Università di Roma Competenze abilitanti per l'intelligenza artificiale: didattica, laboratori e dottorati nei progetti PNRR di Sapienza. Che cosa è stato costruito e che cosa resta (titolo in definizione)
	in definition
15:40	Sessione II - Transizione digitale: intelligenza artificiale, tecnologie quantistiche, supercalcolo e spazio
	Fabio SCIARRINO, Sapienza Università di Roma Il Partenariato Esteso PE4 NQSTI (National Quantum Science and Technology Institute) e le tecnologie quantistiche: dalla fotonica quantistica alle piattaforme di calcolo e comunicazione (titolo in definizione)
	Federico RICCI TERSENGHI, Sapienza Università di Roma Il Centro Nazionale CN1 ICSC (Italian Center for Super Computing) e il supercalcolo: dalla modellazione multiscala alle applicazioni ingegneristiche (titolo in definizione)
	Massimo MECELLA & Francesco LEOTTA, Sapienza Università di Roma MICS - 3A-ITALY in Sapienza: intelligenza artificiale e dati per la manifattura del Made in Italy. Che cosa è stato costruito e che cosa resta (titolo in definizione)

Programma (in definizione)

Orario Lunedì 14 settembre 2026 - pomeriggio - Aula 1 e Chiostro

16:20	coffee break
16:40	Sessione III • Energia, clima e ambiente, sostenibilità e beni culturali
	Gaetano FUSCO, <i>Sapienza University of Rome</i> Il Centro Nazionale MOST per la mobilità sostenibile: dalla governance all'automazione della mobilità urbana
	Paolo CARAFA, <i>Sapienza Università di Roma</i> Il Partenariato Esteso PE5 CHANGES (Cultural Heritage Active Innovation for Sustainable Society) e il patrimonio culturale tangibile: dalla conoscenza del dato archeologico alla sostenibilità e resilienza del patrimonio (titolo in definizione)
	Sergio BRUTTI, Fabio GIULI CAPPONI & Maria Assunta NAVARRA, <i>Sapienza Università di Roma</i> Dalla cella al veicolo: accumulo elettrochimico e trazione elettrica nei progetti PNRR di Sapienza (NEST Spoke 6, MOST Spoke 13, PE2 Spoke 5). Che cosa è stato costruito e che cosa resta (titolo in definizione)
17:20	Sessione IV • Salute, benessere, invecchiamento e nutrizione
	Alberto BOFFI, <i>Sapienza Università di Roma</i> Terapia genica e farmaci a RNA in oncologia: che cosa Sapienza ha costruito nel Centro Nazionale CN3
	L'iniziativa PNC D³4Health: dai gemelli digitali e biologici a un'infrastruttura condivisa di dati e competenze (Relatore e titolo in corso di conferma)
	Il Centro Nazionale CN5 NBFC (National Biodiversity Future Center) fra biodiversità e salute: dall'approccio One Health alla comunicazione e all'educazione scientifica (Relatore e titolo in corso di conferma)
18:00	coffee break e trasferimento nel Chiostro (palco)
18:20	«Il futuro dell'innovazione in Sapienza: dall'innovazione didattica alla ricerca, fino al trasferimento tecnologico» – Tavola rotonda. Moderatore: Maurizio Melis — panel composto dai relatori designati dalle quattro sessioni del pomeriggio e da ulteriori personalità del mondo universitario e della ricerca, delle istituzioni e del sistema produttivo
	Panel: in definizione Alberto BOFFI, <i>Sapienza Università di Roma</i> Francesco BONACCORSO, <i>BeDimensional SpA</i> , Chief Scientific Officer Pasqualantonio PINGUE, <i>SNS</i> (in attesa di conferma) Simone SCARDAPANE, <i>Sapienza Università di Roma</i>
19:45	Aperitivo nel Chiostro

CULTURAL HERITAGE

Co-organised with: Sapienza University of Rome & University "Mediterranea" of Reggio Calabria

Cultural heritage: approaches for the deepening of their knowledge and advanced materials/nanotechnologies for the sustainable conservation

14:00 - 18:00

Chairs: Danilo DINI, *Sapienza University of Rome*, Giuliana FAGGIO & Giacomo MESSINA, *UniRC*

The in-depth knowledge of what concerns cultural heritage involves nowadays an interdisciplinary approach embracing art, history, archaeology, conservation sciences, physics, informatics, geology, biology and chemistry among others, with the aim of providing an omnicomprehensive depiction of the past and its dynamics together with the definition of the conditions of conservation for the different types of finds. Contributions in archaeology, archaeometry and digital treatment of cultural heritage data will be welcome. In particular, the conservation of cultural heritage is increasingly benefiting from advances in materials science and nanotechnology since the development in these scientific sectors leads to innovative and sustainable solutions to address the challenges of preserving historical and artistic assets. The development of functional materials with enhanced protective, diagnostic, and environmental performance is opening new perspectives for safeguarding cultural heritage while ensuring compatibility with conservation principles and long-term sustainability. This event will provide an overview of recent progress in advanced materials and nanotechnologies for cultural heritage conservation, highlighting interdisciplinary approaches that integrate material design, characterization, environmental assessment, and innovative analytical techniques. The workshop will showcase how emerging technologies can contribute to improving the durability, safety, and functionality of conservation treatments while supporting a deeper understanding of heritage materials and their interaction with the surrounding environment. By bringing together experts from different scientific disciplines, the event aims to stimulate discussion on current challenges, foster collaborations across the fields of materials science, physics, chemistry, and conservation, and promote the development of sustainable strategies for the protection and valorisation of cultural heritage. The workshop is intended for researchers, conservation scientists, and professionals interested in the application of advanced technologies to the preservation of cultural heritage.

Michele GUIDA, *Università degli Studi di Salerno*

Advanced and Innovative technologies for RAdon assessment for the Cultural Heritage Conservation and preservation in the framework of the activities of the International center for the advanced studies-Therade

Stefania PORCU, *Università degli Studi di Cagliari*

Sustainable Phenyl Carbon Nitride-Based Self-Cleaning Coatings for Indoor Air Quality Improvement and Cultural Heritage Protection

Nicoletta RUSTA, *Charles University Praga*

Smart Ceria-Based Nanocomposites for Sustainable Protection of Cultural Heritage Artworks

Letizia CECCARELLI, *Politecnico di Milano*

Methodological challenges in using pXRF on archeological metals

Maria Cristina BIELLA, *Sapienza Università di Roma*

Characterization of Architectural Terracottas from Falerii by pXRF

Maria Laura SANTARELLI, *Sapienza Università di Roma*

Characterization by high resolution microscopies and spectroscopies of various Early Bronze Age artifacts from Motya and Jericho

Natasa TODOROVIC, *University of Novi Sad, Serbia*

Low-Level Nuclear Techniques for Characterization of Advanced Materials and Nanomaterials

Francesco CARIDI, *Università degli Studi di Messina*

Assessment of Radon Exhalation and Radiological Hazard in Nanostructure-Treated Building Materials of Historical and Artistic Interest

Giorgio SENESI, *ISTP-CNR*

Analytical capabilities of handheld Laser-Induced Breakdown Spectroscopy (hLIBS) for investigating heterogeneous and corroded iron objects of possible meteoritic origin

09:00 - 11:00

OS.I

OPENING SESSION

Welcome and Greetings

Chairs: **Maria Sabrina SARTO**, Sapienza University of Rome, Deputy Rectress for Research
Carlo Massimo CASCIOLA, Sapienza University of Rome, Dean of the Faculty of Civil and Industrial Engineering

OS.I.1	Antonella POLIMENI Sapienza University of Rome, Rector Welcome address
OS.I.2	<i>in definition</i>
OS.I.3	Pietro ASINARI (in person or by delegate) INRIM, President
OS.I.4	<i>in definition</i>
OS.I.5	<i>in definition</i>
OS.I.6	<i>in definition</i>
OS.I.7	Massimo BERSANI FBK - Fondazione Bruno Kessler, Head of the Materials and Topologies for Sensors and Devices Research Unit, on behalf of the President, Prof. Ferruccio RESTA
OS.I.8	Maria Cristina MESSA Fondazione Don Carlo Gnocchi, Scientific Director
OS.I.9	Candido Fabrizio PIRRI Politecnico di Torino, Vice Rector for Research Model and Infrastructure Development, on behalf of the Rector, Prof. Stefano CORGNATI
OS.I.10	Giovanni TOSI University of Modena and Reggio Emilia, on behalf of the Rector Prof. Rita CUCCHIARA

PS.I

PLENARY SESSION

Turning Transition Goals into Technology: Energy, Materials and Advanced Electronics

Energy transition is often framed in terms of targets and timelines. Delivering it, however, depends on a less visible chain of choices: innovation strategies, research priorities, materials, processes and electronic technologies that must perform reliably and at scale. This session moves from the system-level challenge to the enabling technological layer beneath it, bringing strategic direction into dialogue with industrial implementation. On the table — the strategies and actions required to advance the energy transition, the contribution of research and technological development to its implementation, and the materials and processes enabling advanced semiconductor interconnects and packaging. Together, the contributions ask what technological and industrial capabilities are needed to turn transition goals into deployable solutions — a question taken forward by the following round table on research infrastructures.

Chair: in definition

PS.I.1	Nicola ROSSI, Head of Innovation, Enel Group Energy transition: strategies and actions
PS.I.2	Giulia MONTELEONE, ENEA, Director of the TERIN Department Title in definition
PS.I.3	Luigi Marco CALLIGARICH, IMAPS Italy, CEO Materials and processes for advanced semiconductor interconnects and packaging

ROUND TABLE

RESEARCH INFRASTRUCTURES AT WORK

Driving Innovation across Advanced Technologies,
Industry and Life Sciences

Coordinator: Vittorio MORANDI, CNR-ISMN & Marco ROSSI, Sapienza University of Rome

Moderator: Maurizio MELIS, Scientific Journalist

The round table is now a fixture of NanoInnovation, and its recent editions have traced a deliberate arc. Together, they have explored the evolving role of Research Infrastructures within the European research and innovation ecosystem: in 2024, as open-access platforms and shared facilities supporting technology transfer; in 2025, as strategic enablers of innovation pathways in the age of artificial intelligence. In both cases, the focus was on the technologies, expertise and open-access services that infrastructures offer to research and industry.

The 2026 edition takes the third step and is guided by one overarching question: what do Research Infrastructures deliver when they are fully operational? The two previous editions examined what exists and why it matters. This edition turns to evidence of impact: what changes, measurably, in a laboratory, on a production line or along a clinical pathway as a result of access to an infrastructure.

The timing is deliberate. Exceptional European and national public investment has equipped Italy and the wider European research system with a new generation of research and technology infrastructures. The question is no longer how to build them, but how to convert this investment into lasting capability: scientific excellence, industrial competitiveness, advanced skills and societal benefit. That conversion depends on sound governance, sustainable operating models and credible evidence of results; investment momentum alone is not enough.

This edition also widens the frame to the life sciences, where these issues are especially acute. In this domain, a result generated through an infrastructure is not merely a measurement: it must be traceable, reproducible and robust enough to withstand regulatory scrutiny and support clinical validation. This applies across nanomedicine, biotechnology, medical devices and precision healthcare. An access and quality-assurance model that meets these requirements sets a demanding benchmark for every other sector.

Bringing together infrastructure managers, public institutions, large companies and SMEs, and the life sciences and healthcare communities, the discussion will address this overarching question through four connected dimensions of delivery. These are: governance and financial sustainability beyond the investment cycle; industrial uptake of open-access services, with particular attention to the barriers facing SMEs and the intermediation and support needed to overcome them; quality assurance, traceability and interoperability of research data as foundations of trust between laboratory, factory and clinic; and the contribution of infrastructure capabilities, together with the skills needed to operate them, to European technological sovereignty across critical technologies — advanced materials, micro- and nanoelectronics, artificial intelligence, biotechnology and health technologies.

The aim is not to survey facilities, but to define a shared, evidence-based agenda: what Research Infrastructures have delivered, where their limits remain, and what is needed for them to serve as a lasting bridge between science, technology, industry and healthcare.

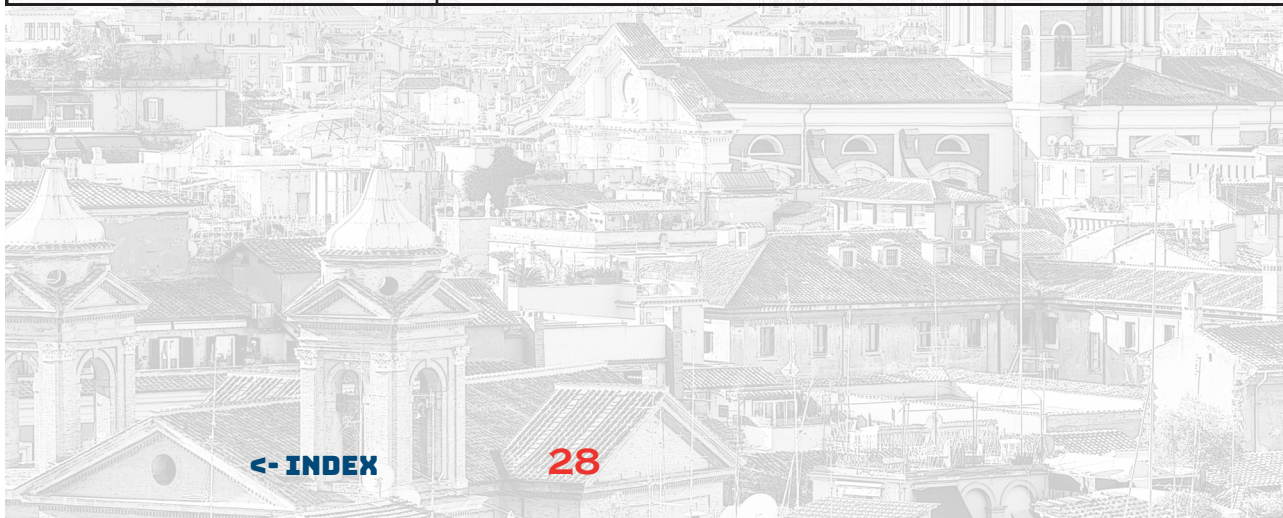
Four supporting questions at a glance

- Governance and sustainability. Which governance and funding models can sustain infrastructure capabilities beyond the current investment cycle, and how should their long-term value be demonstrated?
- Industrial uptake. What still prevents SMEs from using open-access services, and which forms of intermediation and support would remove those barriers?
- Quality and data. Which shared standards and practices for quality assurance, traceability and interoperability are needed to make results trustworthy and reusable from laboratory to factory to clinic?
- Technological sovereignty and skills. Which infrastructure capabilities and professional profiles are essential for Europe to build and retain strategic capacity across critical technologies?

Panel

The panel will bring together infrastructure managers; representatives of public institutions responsible for policy and funding; large companies and SMEs; and members of the life sciences and healthcare communities.

Panelists	
Fabio BOCCUNI	INAIL, <i>Researcher at the Department of Medicine, Epidemiology, Occupational and Environmental Hygiene (DiMEILA)</i>
Francesco BONACCORSO	BeDimensional SpA, <i>Scientific Director & Co-Founder</i>
Giorgio BUSACCA	Thales Alenia Space, <i>Strategic Business Intelligence Markets & NewSpace Manager</i>
Luigi CALLIGARICH	IMAPS Italy, <i>CEO</i>
Alessandro GARIBBO	Leonardo, <i>Head of Universities and Research Centers' Coordination</i>
Luca MASTRATONIO	Enel Group, <i>CEO Nuclitalia & Head of Nuclear Innovation</i>
Pasqualantonio PINGUE	Scuola Normale Superiore, <i>Executive Director of the Management Area for Research, Innovation, Assets and Procurement; Interim Head of the 'Research and Innovation' Area</i>
Nicola ROSSI	Enel Group, <i>Head of Innovation</i>



PS.II

14:00 - 15:30

Sustainable by design: European strategy, electronics and AI in materials development

Chair: Ennio Capria, *ESRF, Grenoble, France*

A material that works in the laboratory still has to survive three filters: a European agenda that decides what gets funded, an environmental account that no longer closes by itself, and a development cycle that AI is rewriting while it runs. The session takes them together, because they have stopped being separate problems. On the table — industrial value chains and where Europe places its bets, the real cost of the electronics we design, digital twins and simulation as everyday laboratory instruments.

PS.II.1

Eva-Kathrin SCHILLINGER, *Secretary General of IAM-I*

Advanced materials for Europe: from a shared agenda to industrial value chains

PS.II.2

Jean-Pierre RASKIN, *Université catholique de Louvain, Belgium, Professor*

Sustainable electronics

PS.II.3

Chiara PERNECHELE, *Dallara, Senior Lab Researcher*

AI and digital twin for characterization and nanomaterials development

coffee break

PS.III

16:00 - 17:30

From measurement to meaning: models, infrastructures and what they make possible

Chair: in definition

Nano-scale instruments have made measurable what could not be measured before. That does not settle what a measurement means, who maintains the systems that produce it, or what it authorises anyone to decide. The session follows the question into the places where it is not academic: a clinical pathway, a food chain, a model someone acts on. On the table — how measurement becomes meaning, the infrastructures that keep evidence shareable and comparable, and what our models quietly rule out.

PS.III.1

Manuel DELAFLOR, *Epistemologist, Philosopher of Science*

Dimensional Collapse: Nano-sensing, Models, and the Human Question - How measurement becomes meaning, and how models shape what becomes possible

PS.III.2

Maurizio SCARPA, *University of Padua & European Reference Network For Rare Hereditary Metabolic Diseases (Metab-ERN), Coordinator*

Crossing the barrier: Nanomedicine and advanced therapies for rare metabolic diseases (in definition)

PS.III.3

Claudia ZOANI, *ENEA, Researcher*

METROFOOD-RI - the European infrastructure for metrology in the food sector (in definition)

PS.III.4

in definition

18:00 - 20:15

LCA Aperitif

WELCOME COCKTAIL in THE CLOISTER
Theatre Performance

10:50 - 11:30

16 SEPTEMBER

Chair: in definition

IS.I.A
WS.IV.2Gian Carlo TRONZANO, COMAU
The Power of AutomationChairs: Leandro LORENZELLI, *FBK-Sensors and Devices* & Sabrina CONOCI, *University of Bologna*

IS.I.B

Albert ROMANO-RODRIGUEZ, *University of Barcelona*
Nanotechnology-boosted chemoresistive gas sensors: principles, devices and systems

Chair: in definition

IS.I.C

Hala J. EL - KHOZONDAR, *Islamic University of Gaza, Gaza & Imperial college London, UK*
Beyond Obstacles: A Personal Journey into AI-Driven Analysis of Gold Nanoshell Plasmonics

Chair: in definition

IS.I.D

Measuring the Sub-Micron World: Instrumentation and Applications in Extracellular Vesicle Analysis*Beckman Coulter Life Sciences*

Flow cytometry has evolved beyond traditional cell analysis and is now a powerful tool for the characterization of extracellular vesicles, microparticles, and nanoparticles. This session will explore the fundamental principles of flow cytometry and the technological advances that have enabled the detection and analysis of sub-micron particles. Through practical examples and real-world applications, participants will gain insights into the evolution of flow cytometry technology and its expanding role in biomedical research. The session will highlight how modern flow cytometry platforms are driving new discoveries and unlocking opportunities to investigate the nano-scale world.

Tommaso RONDELLI, *Beckman Coulter Life Sciences***Flow Cytometry Fundamentals, Cell Sorting, and Advanced Approaches for Microparticle Analysis**Claudia Maria RADU, *Beckman Coulter Life Sciences***Flow Cytometry Beyond Cells: Exploring Nanoparticles in Biomedical Research**

Chair: in definition

IS.I.E

Richard WILTON, *FBK, Director at Center for Sensors & Devices*
From Funding Opportunities to Research Strategy

10:50 - 11:30

17 SEPTEMBER

Chair: in definition

IS.II.A
WS.IV.8.1Lorenzo ORSINI, *ALKEEMIA*
Title in definitionChair: Luciano DE SIO, *Sapienza University of Rome*

IS.II.B

Matteo GUIDOTTI, *CNR-SCITEC, National Research Council, Institute of Chemical Sciences and Technologies*
Tailoring Nanostructured Inorganic Oxides for Safe and Sustainable Decontamination of CBRN Hazardous Materials

Chair: in definition

IS.II.C

Beyond the Laboratory: Innovation and Research Policy

This session is part of the Workshop WS.VII.1 on "*Remembering Luigi Nicolais, his impact in the scientific world and his legacy*".

It takes up the part of Nicolais's record that lies outside the university. He built a technological district around the engineering of polymer and composite materials, carried research and innovation into regional and then national government, and presided over the CNR at a time when the Italian research system was being reorganised. The session asks what those experiences established — how research becomes enterprise, and how a national research body can be governed — and under what conditions they can be repeated in a landscape that has since changed considerably.

IS.II.C.1
WS.VII.1.1

in definition

IS.II.C.2
WS.VII.1.2

in definition

Chair: in definition

IS.II.D

Massimo BERSANI, *FBK*
Nano Technologies for Quantum

Chair: in definition

IS.II.E

Flavio Cognigni, *Zeiss Italia*
Title in definition

10:50 - 11:30

18 SEPTEMBER

Chair: in definition

IS.III.A
WS.IV.13.1Laura MICHELI, *University Tor Vergata of Rome*
Title in definition

Chair: in definition

IS.III.B

in definition

Chair: in definition

IS.III.C

in definition

TT.I.A WS.II.1	NAMs4NANO: unlocking the potential of NAMs in supporting the risk assessment of nanomaterials <i>Co-organised with ISS</i> Chairs: Francesco CUBADDA & Andrea HAASE, BfR
TT.I.B WS.III.1	Nanotechnology for energy and packaging <i>Co-organised with Polytechnic University of Turin</i> Chair: Valentina BERTANA, Polytechnic University of Turin
TT.I.C WS.IV.1	Electrochemical Energy Storage: Strategic Perspectives and the Battery Value Chain <i>Co-organised with ENEA</i> Chair: Mariasole DI CARLI, ENEA
TT.I.D	Advances in Sensors and Microfluidics for Environmental and Health Applications - 1/2: Sensors <i>Co-organised with FBK</i> Chairs: Leandro LORENZELLI, FBK-Sensors and Devices & Sabrina CONOCI, University of Bologna
TT.I.E	Bioengineered Interfaces and Data-Driven Technologies For Advanced Biomedical Applications 1/2 <i>Co-organised with University "Mediterranea" of Reggio Calabria</i> Chairs: Giacomo MESSINA, University "Mediterranea" of Reggio Calabria & Caterina Maria TONE, CNR-NANOTEC – Istituto di Nanotecnologia, Rende (CS)
TT.I.F FE.I.1	Microfabrication of PV devices <i>Co-organised with Sapienza University of Rome</i> Chair: Danilo DINI, Sapienza University of Rome
TT.I.G	Direct Atomic Layer Processing (DALP®) for Materials Discovery and Applications <i>Co-organised with ATLANT 3D</i> Chair: Thomas TRAN, Atlant 3D
TT.I.H FE.I.2	Bio-Nano Interface: From gene delivery to precision diagnostic <i>Co-organised with Sapienza University of Rome</i> Chair: in definition
TT.I.I	Advanced Materials and Smart Manufacturing for the Green Industrial Transition <i>Co-organised with RINA</i> Chair: Alessia BEZZON, RINA
TT.I.J	

TT.II.A WS.II.2	Exploring the Nanoscale: Flow Cytometry Methods and Applications for Nanoparticle Characterization <i>Co-organised with ISS</i> Chairs: Valentina TIRELLI & Franco CARDONE, ISS
TT.II.B WS.III.2	Smart technologies for Advanced Healthcare: From Functional Materials to 3D in vitro Models <i>Co-organised with Polytechnic University of Turin</i> Chair: Veronica VIGHETTO, Polytechnic University of Turin
TT.II.C WS.IV.3	Advanced Materials for Sodium-Ion Batteries: From Industrial Perspectives to Electrode Design <i>Co-organised with ENEA</i> Chair: Claudia PAOLETTI, ENEA
TT.II.D	Advances in Sensors and Microfluidics for Environmental and Health Applications - 2/2: Microfluidics & Biosystem <i>Co-organised with FBK</i> Chairs: Leandro LORENZELLI, FBK-Sensors and Devices & Sabrina CONOCI, University of Bologna
TT.II.E	Advanced Materials in Europe <i>Co-organised with INRiM</i> Chairs: Luca BOARINO, Natascia DE LEO & Giulia APRILE, INRiM
TT.II.F FE.I.3	PV devices of new conception with hybrid organic-inorganic materials <i>Co-organised with Sapienza University of Rome</i> Chair: Giulia GRANCINI, University of Pavia
TT.II.G FE.I.4	Precision Nanomedicine <i>Co-organised with University of Magna Graecia</i> Chair: Nicola D'AVANZO, University of Magna Graecia
TT.II.H	Bioengineered Interfaces and Data-Driven Technologies For Advanced Biomedical Applications 2/2 <i>Co-organised with University "Mediterranea" of Reggio Calabria</i> Chairs: Giuliana FAGGIO & Maria Penelope DE SANTO, University "Mediterranea" of Reggio Calabria
TT.II.I	

TT.III.A WS.II.3	Micro and nanoplastics: advancing knowledge from detection to mitigation <i>Co-organised with ISS</i> Chairs: Cristina ANDREOLI & Beatrice BOCCA, ISS
TT.III.B WS.III.3	From Innovation to Research Valorization: Methods, Tools and Protection of Research Results <i>Co-organised with Polytechnic University of Turin</i> Chair: Francesco MATTEUCCI, Fondazione Bruno Kessler (FBK)
TT.III.C WS.IV.4	Advanced Battery Components: Manufacturing and Functional Materials <i>Co-organised with ENEA</i> Chair: Annalisa AURORA, ENEA
TT.III.D	NanoEthics: Geopolitics and ethics of Nanotechnologies <i>Co-organised with FBK</i> Chairs: Sara HEJAZI & Massimo BERSANI, FBK
TT.III.E	Adsorption Processes on High Surface Area Materials for Energy and Sensing Applications <i>Co-organised with INRiM</i> Chair: Alessia AIRI, INRiM
TT.III.F FE.I.5	Functional nanostructures and complex interfaces for sensing at the physical limits <i>Co-organised with Sapienza University of Rome</i> Chair: Antonio D'ALESSANDRO, Sapienza University of Rome
TT.III.G FE.I.6	Bridging the gap: 3D and advanced models for nanomedicine and tissue regeneration <i>Co-organised with University of Magna Graecia</i> Chairs: Laura CATENACCI & Michela SORRENTI, University of Pavia
TT.III.H	Integrated experimental, computational and ai-driven design of sustainable coatings: the cobrain approach <i>Co-organised with Università Roma Tre</i> Chair: in definition
TT.III.I	Nanotech Alumni: Nanotechnology After Graduation 1/2 <i>Organised by University of Rome</i> Chair: Daniele PASSERI & Francesco MARRA, Sapienza University of Rome
TT.III.J	in definition

TT.IV.A WS.II.4	New drug delivery systems for biomedical applications <i>Co-organised with ISS</i> Chairs: Giuseppina BOZZUTO & Marisa COLONE, ISS
TT.IV.B WS.III.4	From Research to Enterprise: Industry Collaboration, Spin-Offs and Venture Capital <i>Co-organised with Polytechnic University of Turin</i> Chair: Francesco MATTEUCCI, <i>Fondazione Bruno Kessler (FBK)</i>
TT.IV.C WS.IV.5	Battery Systems: Testing, Validation and Advanced Applications <i>Co-organised with ENEA</i> Chair: Francesco VITIELLO, ENEA
TT.IV.D	in definition
TT.IV.E	AI and Biobased/Composite Materials: Emerging Research Interests <i>Co-organised with AIRI</i> Chair: in definition
TT.IV.F FE.I.7	Space Missions and Nanotech: Advancements <i>Co-organised with Sapienza University of Rome & Thales Alenia Space</i> Chair: in definition
TT.IV.G FE.I.8	Innovative Nanomaterials: Illuminating the Path to Precision Medicine 1/2 <i>Co-organised with Sapienza University of Rome</i> Chair: Francesca PETRONELLA, CNR-IC
TT.IV.H	Nanotech Alumni: Nanotechnology After Graduation 2/2 <i>Organised by University of Rome</i> Chairs: Daniele PASSERI & Francesco MARRA, <i>Sapienza University of Rome</i>



TT.V.A	Additive Manufacturing: from nanoscale to macro-scale - Innovation in processing technologies, materials and qualification 1/2 <i>Co-organised with ENEA & Polytechnic University of Turin</i> Chairs: Giovanni DI GIROLAMO & Giuseppe BARBIERI, ENEA
TT.V.B WS.III.5	Enabling factors of Nanotech scale-up <i>Co-organised with Polytechnic University of Turin</i> Chair: Roberto GIANANTONIO, NANOSHUTTLE srl
TT.V.C WS.IV.7 FE.I.9	Innovative materials for electrochemical applications <i>Co-organised with ENEA</i> Chair: Margherita MORENO, ENEA
TT.V.D	in definition
TT.V.E	Nanotechnology strategies for CBRN risk mitigation and resilience 1/4 <i>Co-organised with Sapienza University of Rome & CNR – Institute of Crystallography</i> Chairs: Luciano DE SIO, Sapienza University of Rome & Francesca PETRONELLA, CNR – Institute of Crystallography
TT.V.F	in definition
TT.V.G FE.I.10	Technology Transfer in Nanotech <i>Co-organised with University of Magna Graecia</i> Chair: Christian CELIA, University of Magna Graecia
TT.V.H WS.V.1	Next-Generation Functional Semiconductors for Energy and Electronics: From Perovskites to Organic Devices 1/3 <i>Co-organised with FBK</i> Chair: Imren HATAY PATIR, Selçuk University
TT.V.I	

TT.VI.A	Additive Manufacturing: from nanoscale to macro-scale - Innovation in processing technologies, materials and qualification 2/2 <i>Co-organised with ENEA & Polytechnic University of Turin</i> Chairs: Giovanni DI GIROLAMO & Giuseppe BARBIERI, ENEA
TT.VI.B WS.III.6	Best practice of nanotech scale up <i>Co-organised with Polytechnic University of Turin</i> Chair: Andrea CAPASSO, International Iberian Nanotechnology Laboratory
TT.VI.C WS.IV.9	Climate-Resilient Smart Grids: Research and Innovation for the Evolution and Planning of Electrical Networks <i>Co-organised with ENEA</i> Chair: Martina CALIANO, ENEA
TT.VI.D	Nanomedicine: the benefit and the challenges of nanotechnology in health care <i>Co-organised with University of Modena and Reggio Emilia</i> Chair: in definition
TT.VI.E	Nanotechnology strategies for CBRN risk mitigation and resilience 2/4 <i>Co-organised with Sapienza University of Rome & CNR – Institute of Crystallography</i> Chair: Francesca PETRONELLA, CNR – Institute of Crystallography
TT.VI.F FE.I.11	Innovations in Nano-Technologies for Extracellular Vesicle Characterization <i>Co-organised with ISS</i> Chairs: Giovanna SCHIAVONI & Fabrizio MATTEI, ISS
TT.VI.G FE.I.12	Impacts of Nanomaterials and New Advanced Materials on Health and Safety in the Workplace <i>Co-organised with INAIL</i> Chair: Fabio BOCCUNI, INAIL
TT.VI.H WS.VII.2	in definition
TT.VI.I WS.V.2	Next-Generation Functional Semiconductors for Energy and Electronics: From Perovskites to Organic Devices 2/3 <i>Co-organised with FBK</i> Chair: Imren HATAY PATIR, Selçuk University
TT.VI.J	

TT.VII.A WS.I.1	Integrated approach for prevention through design in nanomaterials and advanced materials production processes <i>Co-organised with INAIL</i> Chairs: Fabio BOCCUNI, INAIL & Stefania SABELLA, IIT
TT.VII.B WS.III.7	From Low to High TRL: Technological Challenges and System Evolution Across Research and Industry - Round Table <i>Co-organised with Polytechnic University of Turin</i> Chair and moderator: Francesco MATTEUCCI, FBK
TT.VII.C WS.IV.10	Thermal Energy Storage: main research activities at medium temperature <i>Co-organised with ENEA</i> Chair: Elisabetta Maria VECA, ENEA
TT.VII.D	From Memristor Physics to AI Circuits <i>Co-organised with University "Mediterranea" of Reggio Calabria</i> Chairs: Giuliana FAGGIO, Giacomo MESSINA & Massimo MERENDA, University "Mediterranea" of Reggio Calabria
TT.VII.E	Nanotechnology strategies for CBRN risk mitigation and resilience 3/4 <i>Co-organised with Sapienza University of Rome & CNR – Institute of Crystallography</i> Chair: Federica ZACCAGNINI, Sapienza University of Rome
TT.VII.F FE.I.13	Advanced Transducers for Smart Sensing <i>Co-organised with Sapienza University of Rome</i> Chair: Fabiana ARDUINI, University of Rome "Tor Vergata"
TT.VII.G FE.I.14	Mechanobiology <i>Co-organised with Sapienza University of Rome</i> Chair: Livia ANGELONI, Sapienza University of Rome
TT.VII.H WS.VI.1	Irradiation Facilities, High-Energy Physics, and Nuclear Applications <i>Co-organised with ENEA</i> Chair: Jessica SCIFO, ENEA
TT.VII.I	<i>This session has been absorbed into another part of the programme, where its content is now scheduled.</i>
TT.VII.J WS.V.3	Next-Generation Functional Semiconductors for Energy and Electronics: From Perovskites to Organic Devices 3/3 <i>Co-organised with FBK</i> Chair: Mujeeb U. CHAUDRHY, Durham University
TT.VII.K WS.VIII.1	CCUS in Action: The ECCSEL ERIC Italian Nodes Contribution <i>Co-organised with CNR-STEMS</i> Chairs: Michela ALFE & Valentina GARGIULO, CNR-STEMS

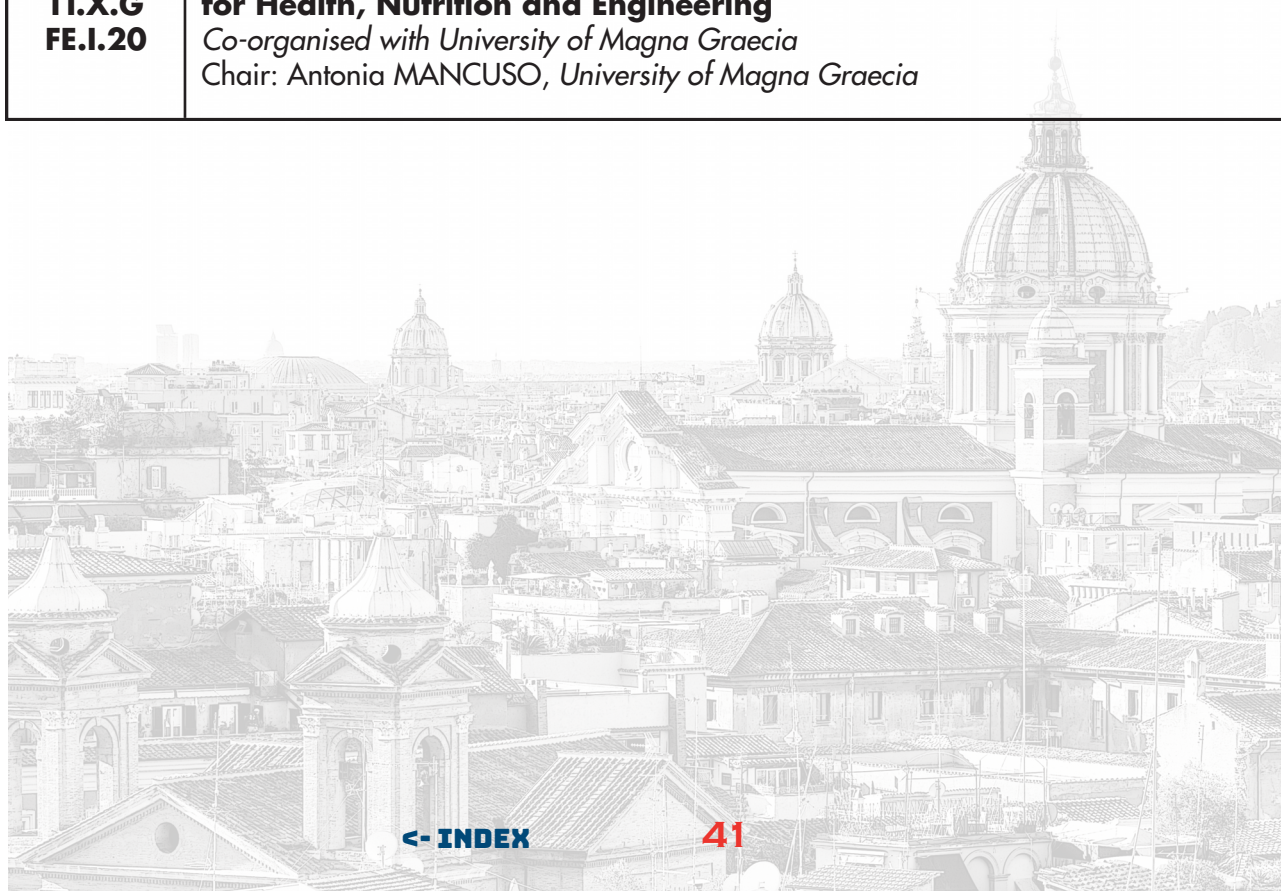
TT.VIII.A WS.III.8 FE.I.15	From Research to Startup: Bridging Innovation and Entrepreneurship <i>Co-organised with Polytechnic University of Turin</i> Chair: Mara SERRAPEDE, Polytechnic University of Turin
TT.VIII.B	Nanomaterials for THz Photonics and Electronics <i>Co-organised with Sapienza University of Rome</i> Chair: Antonio D'ALESSANDRO, Sapienza University of Rome
TT.VIII.C WS.IV.11	Thermal Energy Storage: main research activities at high temperature for industrial objectives <i>Co-organised with ENEA</i> Chair: Raffaele LIBERATORE, ENEA
TT.VIII.D	Materials Acceleration Platforms (MAPs) <i>Co-organized with CNR-ISMN within the CRIOS4CET Project</i> Chair: Antonio SANTAGATA, & Aldo DI CARLO, CNR - Istituto di Struttura della Materia
TT.VIII.E	Nanotechnology strategies for CBRN risk mitigation and resilience 4/4 <i>Co-organised with Sapienza University of Rome & CNR – Institute of Crystallography</i> Chair: Arianna AVITABILE, Sapienza University of Rome
TT.VIII.F FE.I.16	Biofabrication for Clinical Translation: From Advanced Technologies to Patient-Relevant Models <i>Co-organised with University of Magna Graecia</i> Chair: Michele CONTI, University of Pavia
TT.VIII.G WS.VIII.2	Scientific and Technological Advances in Carbon Capture, Utilisation and Storage <i>Co-organised with CNR-STEMS</i> Chairs: Michela ALFE, Valentina GARGIULO, CNR-STEMS
TT.VIII.H WS.VI.2	Advanced ionizing radiation technologies for life, material sciences, and space exploration 2/2 <i>Co-organised with ENEA</i> Chair: Rocco CARCIONE, ENEA



TT.IX.A	From Low to High TRL: Nanotechnology for energy and packaging 1/2 <i>Co-organised with Polytechnic University of Turin</i> Chair: in definition
TT.IX.B FE.II.1	Italian Research Infrastructures for Materials and Enabling Technologies - Post-NRRP Review and Future Outlook <i>Co-organised with Sapienza University of Rome and CNR-ISMN within the CRIOSS4CET Project</i> Chair: in definition
TT.IX.C WS.IV.12	Frontier material and devices for energy application 1/2 <i>Co-organised with ENEA</i> Chair: in definition
TT.IX.D WS.IX.1	From Waste to Roads: the RESCA Project Circular Solutions for Sustainable Asphalt <i>Co-organised with CNR - STEMS</i> Chair: Valentina GARGIULO, CNR - STEMS & Pietro CALANDRA, CNR-ISMN
TT.IX.E	EU Projects related to Advanced Materials <i>Co-organised with INRiM</i> Chairs: Luca BOARINO & Natascia DE LEO, INRiM
TT.IX.F FE.I.17	Beyond Lithium Batteries: Sustainable Systems for the Electrochemical Storage of Energy <i>Co-organised with ... in definition</i> Chair: in definition
TT.IX.G FE.I.18	Nanomaterials for Sensing and Biosensing: A One Health Perspective Chair: Luciano DE SIO, Sapienza University of Rome
TT.IX.H WS.X.2	CHross Lab (DSCTM-CNR) and Heritage-LAB (Sapienza) join forces in innovative and sustainable research for the safeguarding of cultural heritage 1/2 <i>Co-organised with Sapienza University of Rome & CNR-DSCTM</i> Chair: Maria Laura SANTARELLI, Sapienza University of Rome



TT.X.A	Micro- and nano-processes for advanced devices fabrication and packaging 2/2 <i>Co-organised with Polytechnic University of Turin</i> Chair: in definition
TT.X.B FE.II.2	The Role of Materials in the European Competitiveness Challenge <i>Co-organised with APRE & AIRI</i> Chair: Marco FALZETTI, APRE
TT.X.C WS.IV.14	Frontier material and devices for energy application 2/2 <i>Co-organised with ENEA</i> Chair: Marco FORTUNATO, ENEA
TT.X.D WS.IX.2	Waste Valorization for Next-Generation Asphalt <i>Co-organised with CNR - STEMS</i> Chairs: Cesare OLIVIERO ROSSI, University of Calabria & Michela ALFE, CNR-STEMS
TT.X.E WS.X.3	CHross Lab (DSCTM-CNR) and Heritage-LAB (Sapienza) join forces in innovative and sustainable research for the safeguarding of cultural heritage 2/2 <i>Co-organised with Sapienza University of Rome & CNR-DSCTM</i> Chair: Gabriella DI CARLO, CNR-ISMN & Stefano LEGNAIOLI, CNR-ICCOM
TT.X.F FE.I.19	Nanotechnologies for Analysis, Certification and Custom Services <i>Co-organised with ... in definition</i> Chair: in definition
TT.X.G FE.I.20	Cultivating Connections: Renewable Resources and Circular Solutions for Health, Nutrition and Engineering <i>Co-organised with University of Magna Graecia</i> Chair: Antonia MANCUSO, University of Magna Graecia



TT.XI.A	in definition
TT.XI.B FE.II.3	Critical Space Technologies and European Non-Dependence: Open Innovation from Advanced Materials to Qualified Systems Chair: in definition
TT.XI.C WS.IV.15	Carbon Dioxide Removal and CCUS: Towards Integrated Carbon Management 1/2 <i>Co-organised with ENEA</i> Chair: Nicola LISI and Silvano DEL GOBBO, <i>ENEA</i>
TT.XI.D	in definition
TT.XI.E	in definition
TT.XI.F FE.I.21	4D Printing: Smart Materials and Responsive Structures <i>Co-organised with University of Magna Graecia</i> Chair: Delia MANDRACCHIA, <i>University of Brescia</i>
TT.XI.G FE.I.22	in definition



TT.XII.A	in definition
TT.XII.B	in definition
TT.XII.C WS.IV.16	Carbon Dioxide Removal and CCUS: Towards Integrated Carbon Management 2/2 <i>Co-organised with ENEA</i> Chair: Nicola LISI and Silvano DEL GOBBO, ENEA
TT.XII.D	in definition
TT.XII.E	in definition
TT.XII.F FE.I.23	Emerging technologies for advanced therapeutics <i>Co-organised with University of Magna Graecia</i> Chair: Emanuela Fabiola CRAPARO, University of Palermo
TT.XII.G FE.I.24	in definition



TT.I.A WS.II.1 **NAMs4NANO: unlocking the potential of NAMs in supporting the risk assessment of nanomaterials**

Co-organised with ISS

Chairs: Francesco CUBADDA & Andrea HAASE, BfR

1. Maria Chiara ASTUTO, *EFSA*
The perspective of the European Food Safety Authority on NAMs in relation to food/feed nano-specific risk assessments
2. Andrea HAASE, *BfR*
A qualification system to accelerate development and regulatory implementation of NAMs
3. Francesco CUBADDA, *ISS*
The NAMs4NANO case studies: a broad NAM catalogue to address risk assessment challenges of real-world materials
4. Francesca FERRARIS, *ISS*
The physicochemical characterization and analytical platform underpinning NAMs4NANO

TT.I.B WS.III.1 **Nanotechnology for energy and packaging**

Co-organised with Polytechnic University of Turin

Chair: Valentina BERTANA, Polytechnic University of Turin

1. Gianluca DI PROFIO, *CNR-ITM*
Composite hybrid membranes with smart and self-cleaning capability for desalination and bioseparations
2. Matteo VERDI, *Kirana srl*
Development of femtosecond laser micromachining processes for industrial applications
3. Anil KUMAR, *Malven Panalytical*
X-ray absorption spectroscopy applications on a versatile laboratory X-ray diffractometer
4. Mariangela GIOANNINI, *Polytechnic University of Turin*
Modelling strategies for Industrial Silicon Photonics: bridging commercial design suites and custom physical models

TT.I.C WS.IV.1 **Electrochemical Energy Storage: Strategic Perspectives and the Battery Value Chain**

Co-organised with ENEA

Chair: Mariasole DI CARLI, ENEA

1. Margherita MORENO, *ENEA*
The European Battery Ecosystem: Current Landscape and Future Perspectives
2. Alessandra DI BLASI, *CNR-ITAE*
Energy Storage Innovation in Italy: From Conventional Batteries to Next-Generation Technologies through the Ricerca di Sistema Programme
3. Omar PEREGO, *RSE*
Strategic Drivers for Battery Development: measures to mitigate critical raw material supply risks
4. Grazia ACCARDO, *Leonardo*
Batteries in Aerospace, Defense and Space

TT.I.D Advances in Sensors and Microfluidics for Environmental and Health Applications 1/2: Sensors

Co-organised with FBK

Chairs: Leandro LORENZELLI, FBK-Sensors and Devices & Sabrina CONOCI, University of Bologna

1. Daniel NILSEN WRIGHT, *SINTEF Digital Smart Sensors and Microsystems*
COMPAS – developing a fully integrated waveguide interferometric sensor detecting problematic substances
2. Pufinji OBENE, *Oliveris Tech Incubator Ltd*
Adaptive Analogue Phase Reconstruction in Mach-Zehnder Interferometers Using Feedback Horner Models for Reduced Chip Complexity
3. Giulia ELLI, Paolo LUGLI & Luisa PETTI, *Faculty of Engineering, Free University of Bolzano-Bozen*
EG-FET Based Sensor for Nanoplastics Detection
4. Leandro LORENZELLI, *FBK-SD Microsystems Technology*
Low-cost sensor module for minimally invasive diagnostic for smart mobile devices

TT.I.E Bioengineered Interfaces and Data-Driven Technologies For Advanced Biomedical Applications 1/2

Co-organised with University "Mediterranea" of Reggio Calabria

Chairs: Giacomo MESSINA, University "Mediterranea" of Reggio Calabria & Caterina Maria TONE, CNR-NANOTEC – Istituto di Nanotecnologia, Rende (CS)

1. Loredana DE BARTOLO
Bioartificial Membranes as Engineered Biointerfaces for Advanced Biomedical Applications
2. Sabrina MORELLI
Biomimetic Membrane Tools for Neuronal Tissue Engineering
3. Tanzeel UL REHMAN
Micro-Raman Spectroscopy of Fibroblast- and Keratinocyte-Derived Extracellular Vesicles for Label-Free Biochemical Profiling
4. Anna Maria ZIMBO
From Surface Capture to Digital Fingerprinting: An Integrated Nanointerface Platform for Tissue-Specific EV RNA Analysis

TT.I.F Microfabrication of PV devices

FE.I.1

Co-organised with Sapienza University of Rome

Chair: Danilo DINI, Sapienza University of Rome

1. **Introductive Keynote**
Diego COLOMBARA, *UniGe*
Beyond conventional lithography
2. Marco PICCINNI, *UniGe*
Ferrofluid Lithography: Reviewing and Evolving Paradigm in Electroplating
3. Sood MOHIT, *AVANCIS*
Title in definition
4. Shahbazi FATEMEH (Online), *IIT*
Title in definition
5. ARTEGIANI Elisa, *University of Verona*
CdTe solar cells: from Cu to group V doping

TT.I.G Direct Atomic Layer Processing (DALP®) for Materials Discovery and Applications

Co-organised with ATLANT 3D
Chair: Thomas TRAN, Atlant 3D

1. **Rapid Materials Discovery and Functional Thin-Film Engineering with Direct Atomic Layer Processing (DALP®)**
2. **Programmable Nanofabrication by Direct Atomic Layer Processing (DALP®) for Optics, Microelectronics, Sensors, and Catalysis**
3. in definition
4. in definition

TT.I.H Bio-Nano Interface: From gene delivery to precision diagnostic FE.I.2

Co-organised with Sapienza University of Rome
Chair: in definition

1. **Introductory Keynote**
Anna Laura CAPRIOTTI, *Sapienza University of Rome*
A Decade of the Liposome-Protein Corona: Lessons Learned and Future Breakthroughs in Theranostics
2. Erica QUAGLIARINI, *Sapienza University of Rome*
Precision Medicine at the Nanoscale: the Role of Nanoparticle-Protein Corona in Diagnostics
3. Francesca GIULIMONDI, *Sapienza University of Rome*
Artificial Protein Corona for Enhanced LNP Gene Delivery to Glioblastoma
4. Serena RENZI, *Sapienza University of Rome*
Exploiting the Protein Corona for Functional LNP Design and Hepatic Gene Silencing
5. Siyao XIAO, *Sapienza University of Rome*
Characterizing the Protein Corona of PEG-Reduced LNPs for Gene Delivery

TT.I.I Advanced Materials and Smart Manufacturing for the Green Industrial Transition

Co-organised with RINA
Chair: Alessia BEZZON, RINA

1. Francesco SCIARRABBA & Yasin MOHAMED EL SAYED, *RINA Consulting - Centro Sviluppo Materiali SpA*
MITHRIL: Hydrogen Barrier Coatings for Safe and Sustainable Hydrogen Infrastructure
2. Valentina ALEMANNO, Andrea ROSATI, *RINA Consulting - Centro Sviluppo Materiali SpA*
superProDR: Advanced Surface Engineering Solutions for High-Productivity Direct Reduction Processes
3. Eugenia SAINSUS, *RINA Consulting - Centro Sviluppo Materiali SpA*
EnWaRec: Functional coatings for steel application in energy and water recovery systems
4. Domenico COSTANZO, *RINA Consulting - Centro Sviluppo Materiali SpA*
SMARTWELD: SMART system integrating automatic/robotic hybrid WELDing technologies, quality monitoring, and WPS predictive tool
5. Domenico AMICO, Erasmo S. NAPOLITANO, *RINA Consulting - Centro Sviluppo Materiali SpA*
FASTCH2ANGE: PFAS-free materials for sustainable-by-design clean hydrogen production

TT.II.A WS.II.2 Exploring the Nanoscale: Flow Cytometry Methods and Applications for Nanoparticle Characterization

Co-organised with ISS

Chairs: Valentina TIRELLI & Franco CARDONE, ISS

1. Claudia Maria RADU, *University of Padua*
Innovative Approaches to Nanoparticle Identification and Characterization by Flow Cytometry
2. Stefano AMALFITANO, *Water Research Institute, IRSA-CNR*
Flow cytometry for the analysis of micro/nanoparticles: current applications and environmental challenges
3. Fabrizio MATTEI, *ISS*
Immune-Derived Extracellular Vesicles for cancer therapy
4. Aurelia RUGHETTI, *Sapienza University of Rome*
EVS in tumor-immunity cross talk: exploring mechanisms and exploiting biomarkers

TT.II.B WS.III.2 Smart technologies for Advanced Healthcare: From Functional Materials to 3D in vitro Models

Co-organised with Polytechnic University of Turin

Chair: Veronica VIGHETTO, Polytechnic University of Turin

1. Paolo ARIANO, *D³4H*
Beyond the Prototype From Scientific Result to Scalable Healthcare Technology
2. Valentina PREZIOSI, *University of Naples Federico II*
Title in definition
3. Emanuele GIORDANO, *Università degli Studi di Bologna*
Communicating realistic expectations, embracing biological complexity, and fostering integrated approaches to advance clinical relevance of Tissue Engineering
4. Bruno HERNAEZ, *Consejo Superior de Investigaciones Científicas (CSIC)*
Using 3D Skin Models to Study Monkeypox Virus Infection

TT.II.C WS.IV.3 Advanced Materials for Sodium-Ion Batteries: From Industrial Perspectives to Electrode Design

Co-organised with ENEA

Chair: Claudia PAOLETTI, ENEA

1. Mark COPLEY, *FAAM*
Industrial Perspectives on Sodium-Ion Batteries: Opportunities, Challenges and Market Drivers
2. Andrea GRILLO, *University of Naples Federico II*
Low-CRM Layered Cathode Materials for Sodium-Ion Batteries
3. Concetta BUSACCA, *CNR-ITAE*
Electrospun Self-Standing Cathodes for Sodium-Ion Batteries
4. Marco AMBROSETTI, *RSE*
Anode Materials for Sodium-Ion Batteries: From Hard Carbon to MXenes
5. Luca MESINA, *Sapienza University of Rome*
Zeolite - Templated Hard Carbons as an Anode Material for Sodium-Ion Batteries

TT.II.D Advances in Sensors and Microfluidics for Environmental and Health Applications - 2/2: Microfluidics & Biosystem
Co-organised with FBK
Chairs: Leandro LORENZELLI, FBK-Sensors and Devices & Sabrina CONOCI, University of Bologna

1. Sabrina CONOCI, *Department of Chemistry "Giacomo Ciamician", University of Bologna*
Emerging Biosensing Technologies in Molecular Detection for Diagnostics Applications
2. Andrea ADAMI, *FBK-SD Microsystems Technology*
Electrowetting-on-dielectric (EWOD): Current perspectives and applications
3. Moritz PLONER, Paolo LUGLI & Luisa PETTI, *Faculty of Engineering, Free University of Bolzano-Bozen*
Flexible Microfluidics-Integrated Sensor for Multiplexed Sweat Cytokine Monitoring
4. Cristina POTRICH, *FBK-SD Microsystems Technology*
Microfluidic solutions for biomolecules purification in agri-food and health applications

TT.II.E Advanced Materials in Europe
Co-organised with INRiM
Chairs: Luca BOARINO, Natascia DE LEO & Giulia APRILE, INRiM

1. Javier SANFELIX, *European Commission DG Research and Innovation*
Title in definition
2. Fernando ARAUJO DE CASTRO, *NPL National Physical Laboratory*
Advanced Materials in the EMN Advanced Manufacturing
3. Gianluca FIORI, *Department of Information Engineering, University of Pisa*
IAM-I and the Future of Advanced Materials in Europe: From Strategy to Competitiveness
4. Vasile-Dan HODOROABA, *Federal Institute for Materials Research and Testing (BAM), Competence Center AdvancedMaterials@BAM*
The German SRA for Safe Advanced Materials – Leveraging Standardization to Accelerate Materials Innovation and Market Entry
5. Closing remarks

TT.II.F PV devices of new conception with hybrid organic-inorganic materials
FE.I.3
Co-organised with Sapienza University of Rome
Chair: Giulia GRANCINI, University of Pavia

1. **Introductory Keynote**
Aldo DI CARLO, *CNR-ISM*
Title in definition
2. Elham GHAVIDEL, *University of Rome "Tor Vergata"*
Effects of Ultrathin Seed Layers in Thermally Evaporated Perovskite Solar Cells
3. Elisa NONNI, *University of Rome "Tor Vergata"*
Title in definition
4. Simone FILIPPI, *University of Pavia*
Static Antisolvent Processing for Scalable and Sustainable Perovskite Photovoltaics
5. Riccardo PALLOTTA, *Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)*
From Single Crystals to Functional Devices: Metal Halide Perovskite Materials and Junctions

TT.II.G
FE.I.4**Precision Nanomedicine***Co-organised with University of Magna Graecia**Chair: Nicola D'AVANZO, University of Magna Graecia*

1. **Introductory Keynote**
Marzia DE SANTO, *NanoSilica srl, SpinOff Unical*
HER2-Targeted Mesoporous Silica Nanoparticles for Doxorubicin Delivery
2. Sofia MIGANI, *University of Camerino*
Different liposomal formulations of selected copper(II) complex bearing amantadine: synthesis, characterization and biological evaluation
3. Ludovica LUCCHESI PALLI, *University of Palermo*
Engineering Carbon Nanodots for Precision Theranostics: Dual-Mode Imaging Combined with Enhanced Photothermal Therapy
4. Francesca Romana STACCHINI, *Sapienza University of Rome*
Non-Invasive Alzheimer's Diagnosis by Innovative BODIPY-Based Ocular Delivery
5. Jacopo FORTE, *Catholic University of Sacred Heart*
Development and In Vitro/Ex Vivo Evaluation of an innovative Chitosan-Based Bioadhesive Nanoemulsion Platform for Localized Treatment of skin infection

TT.II.H

Bioengineered Interfaces and Data-Driven Technologies For Advanced Biomedical Applications 2/2*Co-organised with University "Mediterranea" of Reggio Calabria**Chairs: Giuliana FAGGIO & Maria Penelope DE SANTO, University "Mediterranea" of Reggio Calabria*

1. Valentina CRAPELLA
University of Magna Graecia
Head-to-Head Comparison of Ultrafiltration-Oscillation and Automated SizeExclusion Chromatography for Extracellular Vesicle Isolation: A Step toward Clinical Laboratory
2. Vittorio PICCHIO
Sapienza University of Rome
Killing of gold nanorods-loaded human cardiac fibroblasts mediated by photo-thermal activation
3. Federica CIUCHI
CNR NANOTEC
Birefringence effects in isotropic phases of Chromonics liquid crystals under confinement
4. Hira AMAN
University "Mediterranea" of Reggio Calabria
Machine Learning-Driven Raman Classification of Chromonic Liquid Crystal Self-Organisation: A Comparative Study of PLS-DA and SVM-RBF
5. Filippo LAGANA'
University of Magna Graecia
Hardware-AI Co-Design Architecture for Intelligent ECG Signal Acquisition and Quality Assessment

TT.III.A WS.II.3 **Micro and nanoplastics: advancing knowledge from detection to mitigation**

Co-organised with ISS

Chairs: Cristina ANDREOLI & Beatrice BOCCA, ISS

1. Giovanni LIBRALATO, *University of Naples Federico II*
Micro- and Nanoplastics: ecotoxicological threats from ecosystems to human health
2. Milica VELIMIROVIC FANFANI, *Flemish Institute for Technological Research*
Advanced analytical strategies for reliable exposure assessment of micro- and nanoplastics
3. Veruscka LESO, *University of Naples Federico II*
Biomarkers of exposure and early biological responses to micro- and nanoplastics
4. Mariacristina COCCA, *Italian National Research Council*
Micro- and Nanoplastics: Advancing Knowledge from Detection to Mitigation

TT.III.B WS.III.3 **From Innovation to Research Valorization: Methods, Tools and Protection of Research Results**

Co-organised with Polytechnic University of Turin

Chair: Francesco MATTEUCCI, Fondazione Bruno Kessler (FBK)

1. Roberto GIANANTONIO, *Nanoshuttle*
Bayesian Entrepreneurship
2. Francesco MATTEUCCI, *Fondazione Bruno Kessler (FBK)*
Accelerating Deep Tech Innovation: The Role of Research Valorization and Ambidextrous Strategies
3. Matteo CEVESE, *HIT - Hub Innovazione Trentino*
Assessing and monitoring innovation journeys: the KTH IRL model in a Proof of Concept programme
4. **ROUND TABLE** - Chiara FURLAN
Ufficio Brevetti Polytechnic University of Turin

TT.III.C WS.IV.4 **Advanced Battery Components: Manufacturing and Functional Materials**

Co-organised with ENEA

Chair: Annalisa AURORA, ENEA

1. Maria MONTANINO, *ENEA*
The Role of Materials Interactions in multicomponent Ink Formulation for Gravure Printed high energy Cathodes
2. Andrea GENTILE, *Université di Montpellier*
Role of Salts in DME-based Electrolytes on First Lithium Formation and Interface Stability within zero-excess battery configuration
3. Myriam D'ALU', *Sapienza University of Rome*
Innovative approaches for reusing valuable materials derived from the recovery of used batteries: from material to system
4. Sara BERGAMASCO, *Nanofaber*
Electrospun Polymeric Separators: Sustainable Alternatives for Next-Generation Batteries
5. Eleonora DE SANTIS, *Sapienza University of Rome*
Low-Temperature Lithium Batteries: The Role of Ionic Liquid Electrolytes in Enhancing Electrochemical Performance

TT.III.D NanoEthics: Geopolitics and ethics of Nanotechnologies*Co-organised with FBK***Chairs: Sara HEJAZI & Massimo BERSANI, FBK**

1. Massimo BERSANI, *FBK*
Nanotechnology and Global Sustainability. From Technological Promise to Safe and Sustainable Innovation
2. Richard HALL-WILTON, *FBK*
The dichotomy of simultaneous globalisation and localisation of nanotechnology
3. Mahmut KUS, *Konya Technical University*
Nanoethics in Advanced Sensor Technologies
4. Sara HEJAZI, *FBK*
Geopolitics at the Nanoscale: How Geography and Culture Shape Iran's Tech Trajectory
5. Manuel DELAFLOR, *FBK*
Title in definition
6. Niccolò MONTI, *FBK*
Who Acts at the Nanoscale? On the Governance of Sub-Visible Technologies

TT.III.E Adsorption Processes on High Surface Area Materials for Energy and Sensing Applications*Co-organised with INRiM***Chair: Alessia AIRI, INRiM**

1. Francesca ROSSO, *University of Turin*
Understanding adsorption in porous materials: from molecular interactions to process performances
2. Matteo FASANO, *Polytechnic University of Turin*
Sorption thermal energy storage, desalination and cooling by low-grade heat: Materials, AI optimization and demonstrators
3. Vincenza BRANCATO, *CNR - ITAE*
Green Synthesis of High Surface Area MIL-100(Fe) for Sorption-Based Energy Applications
4. Maurizio VESPIGNANI, *CNR-ISSMC*
One Ceramic Phase, Many Functions: The Versatility of Calcium Ferrites for Environmental and Energy Applications

TT.III.F Functional nanostructures and complex interfaces for sensing at the physical limits**FE.I.5***Co-organised with Sapienza University of Rome***Chair: Antonio D'ALESSANDRO, Sapienza University of Rome**

1. **Introductory Keynote**
Gaetano SCAMARCIO, *CNR-NANO & University of Bari Aldo Moro*
Emergent Cooperative Response to Single-Molecule Affinity Binding in Large-Area Bilayers
2. Eleonora MACCHIA, *University of Bari*
Title in definition
3. in definition
4. in definition
5. in definition
6. in definition

**TT.III.G
FE.I.6**

Bridging the gap: 3D and advanced models for nanomedicine and tissue regeneration

Co-organised with University of Magna Graecia

Chairs: Laura CATENACCI & Michela SORRENTI, University of Pavia

1. Sara PERTEGHELLA, *University of Pavia, Department of Drug Sciences*
In vitro models for nose-to-brain delivery studies applied to nanoformulations
Virginie SOTTILE, *University of Pavia, Department of Molecular Medicine*
Preclinical models of stem cell differentiation and tissue formation
2. Edoardo BERTANIA, *University of Piemonte Orientale*
One platform, multiple carriers: microfluidics for nanoparticle- and vesicle-based drug delivery
3. Sofia BELLIA, *University of Palermo*
Nanomedicine for brain drug delivery: from design to microfluidic and 3D neurospheroid models
4. Rachele ROSSI, *University of Pavia*
Nucleic acid-loaded lipid nanoparticles optimization and interaction with biological substrates
5. Federica TIBERIO, *Università Cattolica del Sacro Cuore*
Nano-ink-mediated RNA therapy for non-invasive treatment of craniofacial disorders

TT.III.H

Integrated experimental, computational and ai-driven design of sustainable coatings: the cobrain approach

Co-organised with Università Roma Tre

Chair: in definition

1. in definition
2. in definition
3. in definition
4. in definition

TT.III.I

Nanotech Alumni: Nanotechnology After Graduation 1/2

Organised by University of Rome

Chairs: Daniele PASSERI & Francesco MARRA, Sapienza University of Rome

Scientific Committee

Carlo Massimo CASCIOLA, Marco ROSSI & Alessio TAMBURRANO

(First, past and present Coordinators of the MS Program in Nanotechnology Engineering, Sapienza University of Rome)

1. in definition
2. Dechassa AMDISSA TEREFE, *University of Nevada*
Dynamic response of 2D Thin Films of Eutectic Gallium Indium for Interface-enhanced microdroplet Studies of Fluorinated Compounds
3. Cesare NEGRO, *Wizz Air*
Beyond Boundaries: How Nanotechnology Engineering Shapes a Cross-Disciplinary Career
4. in definition

TT.IV.A New drug delivery systems for biomedical applications**WS.II.4***Co-organised with ISS***Chairs: Giuseppina BOZZUTO & Marisa COLONE, ISS**

1. Annarita BILIA, *Department of Chemistry Ugo Schiff, University of Florence*
Nanovectors: a smart approach to increase solubility, bioavailability and stability of drugs
2. Donato NICHIL, *Sapienza University of Rome*
Preparation and characterization of polydatin-chitosan nanocapsules for enhanced drug delivery efficacy
3. Sofia MIGANI, *ISS and University of Camerino*
Synthesis, structural studies and biological evaluation of copper(I) and copper(II) complexes supported by bis(pyrazol-1-yl)acetate ligand functionalized with amantadine for the treatment of glioblastoma
4. Miriam CAVIGLIA, *ISS and University of Camerino*
Nanoparticle-assisted drug delivery of copper complexes as potential anticancer agents

TT.IV.B From Research to Enterprise: Industry Collaboration, Spin-Offs and Venture Capital**WS.III.4***Co-organised with Polytechnic University of Turin***Chair: Francesco MATTEUCCI, Fondazione Bruno Kessler (FBK)**

1. Luigi MESCHINI, *Venture Path*
Title in definition
2. Domenico NESCI, *Deep Ocean Capital Sgr*
From Research to Enterprise: Industry Collaboration, Spin-Offs and Venture Capital
3. Luigi BADALONI
Title in definition
4. **ROUND TABLE** - Francesco MATTEUCCI
Fondazione Bruno Kessler (FBK)

TT.IV.C Battery Systems: Testing, Validation and Advanced Applications**WS.IV.5***Co-organised with ENEA***Chair: Francesco VITIELLO, ENEA**

1. Francesco SERRAO, *Motus-e*
The Role of Batteries in the Energy Transition: Current Challenges and Future Perspectives
2. Natascia ANDRENACCI, *ENEA*
Predictive Algorithms for Battery Diagnostics
3. Giosuè GIACOPPO, *CNR-ITAE*
Hybrid Redox Flow/Lithium-Ion Energy Storage Systems: Benefits and Open Challenges
4. Silvia COLNAGO, *RSE*
Advanced Diagnostics and Suitability Assessment of Second-Life Battery Modules for Stationary Applications

TT.IV.D in definition

1. in definition
2. in definition
3. in definition
4. in definition

TT.IV.E AI and Biobased/Composite Materials: Emerging Research Interests

Co-organised with AIRI
Chair: in definition

1. in definition
2. in definition
3. in definition
4. in definition

TT.IV.F Space Missions and Nanotech: Advancements

FE.I.7 *Co-organised with Sapienza University of Rome & Thales Alenia Space*
Chair: in definition

1. Introductory Keynote
Mirko ROCCI, *Thales Alenia Space*
Advanced Nanomaterials and Quantum Devices: Enabling Technologies for Future Space Missions
2. Mousa Ali AL-RBAIEH, *GST*
Advanced Micro and Nano Characterization: Lead and Lead-Free Solder Joints for Cutting-Edge Space Applications
3. Laura VERDOLINI, *Sapienza University of Rome*
Surface Functionalization Modulates the Antifungal Performance of Silver Nanoparticles
4. Margherita IZZI, *ENEA*
Surface engineering of UHMWPE ropes with tungsten-based polyimide coatings for aerospace radiation shielding applications

TT.IV.G
FE.I.8**Innovative Nanomaterials: Illuminating the Path to Precision Medicine 1/2***Co-organised with Sapienza University of Rome***Chair: Francesca PETRONELLA, CNR-IC**1. **Introductive Keynote**Luciano DE SIO, *Sapienza University of Rome***Photothermal nanomedicine: from cancer therapy to on-demand drug delivery**2. Vincenzo de MELI, *Sapienza University of Rome***Selective Photothermal Therapy of Glioblastoma with Anti-EGFR-Functionalized Gold Nanorods in a 3D Optical Setup Operating in the First Biological Window**3. Martina GORCHILOVA, *Sapienza University of Rome***Gold Nanorod-Functionalized Smart Patches for Light-Triggered On-Demand Drug Delivery**4. Federico PURIFICATO, *Scuola Normale Superiore***Hybrid Boron-Gold Nanoarchitectures for Boron Neutron Capture Therapy**

5. in definition

TT.IV.H

Nanotech Alumni: Nanotechnology After Graduation 2/2*Organised by University of Rome***Chairs: Daniele PASSERI & Francesco MARRA, Sapienza University of Rome****Scientific Committee**

Carlo Massimo CASCIOLA, Marco ROSSI & Alessio TAMBURRANO

*(First, past and present Coordinators of the MS Program in Nanotechnology Engineering, Sapienza University of Rome)*1. Federico BALDUINI, *Columbia University***A Quantum Materials Journey: From Powder in the Furnace to Devices in the Fridge**2. Melania REGGENTE, *University of Applied Sciences and Arts of Southern Switzerland***Engineering Microbe-Electrode Interfaces for Bioelectrochemical Technologies**3. Eleonora FIORENTINI, *Istituto di Ricerche Farmacologiche Mario Negri IRCCS***When engineering meets nephrology: developing a human glomerular filtration barrier-on-chip**4. Maria GAMBELLI, *Sapienza University of Rome***From the classroom to the cleanroom: a silicon-germanium journey towards a quantum cascade detector for THz frequencies**

TT.V.A Additive Manufacturing: from nanoscale to macro-scale - Innovation in processing technologies, materials and qualification 1/2

Co-organised with ENEA & Polytechnic University of Turin
Chairs: Giovanni DI GIROLAMO & Giuseppe BARBIERI, ENEA

1. Joanna KULASA, *Łukasiewicz Research Network – Institute of Non-Ferrous Metals*
Development and optimization of feedstock materials and manufacturing technologies for the production of metallic components by Wire Arc Additive Manufacturing (WAAM)
2. Gaetano PATRIMIA, *ALTFORM*
The Horizon Europe WISE Project: Bridging Macro-, Micro- and Nano-Scale Manufacturing in a Single Multi-Process Platform
3. Sergio GALVAGNO, *ENEA*
Thermal Plasma Processing of Metal Powders for Additive Manufacturing
4. Daniele MIRABILE GATTIA, *ENEA*
Metal additive manufacturing and sustainable applications
5. Francesco FILOSCIA, *INFN*
Dragon Copper®: nanotechnology for improved copper processability across the full laser power range in PBF-LB

TT.V.B Enabling factors of Nanotech scale-up

WS.III.5 *Co-organised with Polytechnic University of Turin*
Chair: Roberto GIANNANTONIO, *NANOSHUTTLE srl*

1. Roberto GIANNANTONIO, *Nanoshuttle*
Semantics of «Enablement» in the Frame of Innovation
2. Fabrizio PIRRI, *Polytechnic University of Turin*
Scaling Nanotech: The Role of Technological Infrastructure in Deep Tech Innovation
3. Vittorio MORANDI, *ISMN - CNR*
Title in definition
4. Marco MAURIZI
Title in definition

TT.V.C Innovative materials for electrochemical applications

WS.IV.7 *Co-organised with ENEA*
FE.I.9 Chair: Margherita MORENO, *ENEA*

1. **Introductory Keynote**
Gianna APPETECCHI, *ENEA*
In definition
2. Alyssa MANCINI, *Sapienza University of Rome*
Understanding Structural and Electrochemical Degradation in Li-Rich Cathodes
3. Daniele STELLATI, *ENEA*
Bi-reforming of methane powered by Induction heating on 3D additively manufactured gamma-alumina monoliths
4. Cheikh Reda BERNAOUI, *Sapienza University of Rome*
A Metal-Free PEO-LiNO₃ Interlayer for Uniform Lithium Deposition on Bare Copper Current Collectors in Anode-Less Lithium-Metal Battery

TT.V.D **Title in definition**
Co-organised with ... in definition
 Chair: in definition

1. in definition
2. in definition
3. in definition
4. in definition

TT.V.E **Nanotechnology strategies for CBRN risk mitigation and resilience 1/4**

Co-organised with Sapienza University of Rome & CNR – Institute of Crystallography

Chairs: Luciano DE SIO, Sapienza University of Rome & Francesca PETRONELLA, CNR – Institute of Crystallography

1. Fabiana ARDUINI, *Tor Vergata University*
Paper-based Electrochemical (Bio)Sensors as Sustainable and Smart Devices for the Defence Sector
2. Giuseppe ANTONACCI, *Specto Photonics*
On-chip Brillouin Spectroscopy for Portable Detection and Characterization of Chemical and Biological Threats
3. Edoardo CAVALIERI D'ORO, *Vigili del Fuoco*
Nanotechnology Strategies for CBRN Risk Mitigation: A First-Responder-Driven Innovation Perspective
4. Panel Discussion & Q&A

TT.V.F **Title in definition**
Co-organised with ... in definition
 Chair: in definition

1. in definition
2. in definition
3. in definition
4. in definition

**TT.V.G
FE.I.10**

Technology Transfer in Nanotech

Co-organised with University of Magna Graecia

Chair: Christian CELIA, University of Magna Graecia

1. **Introductory Keynote**
Agnese RUDZATE, *University of Latvia, Riga, Latvia*
Latvia Finally Opens a New Chapter in Science Commercialisation: What Does It Mean for Researchers, Universities, Industry and Investors?
2. Elisa RAVESIO, *Polytechnic University of Turin*
Scaling Up Silicon-Dominant Anodes: Rheological Control and Bio-Based Binders for Pilot-Scale Battery Electrode Manufacturing
3. Simona VILLATA, *Polytechnic University of Turin*
SelSkin: Advancing Human-Relevant Skin Models for Next-Generation Preclinical Research
4. Jorge MONTERO, *Sapienza University of Rome*
Design of Bifunctional Electrocatalysts for Unitized Regenerative Fuel Cells
5. Myriam D'ALU', *Sapienza University of Rome*
Direct Recycling Approaches for the Recovery and Regeneration of Cathode Materials

**TT.V.H
WS.V.1**

Next-Generation Functional Semiconductors for Energy and Electronics: From Perovskites to Organic Devices 1/3

Co-organised with FBK

Chair: Imren HATAY PATIR, Selçuk University

1. Mujeeb U. CHAUDHRY, *Durham University*
Towards Electrically Pumped Organic Lasers
2. Mustafa KARAMAN, *Eskişehir Technical University*
Superomniphobic Organic/Inorganic Nanocomposite Coatings via Hybrid CVD for Next-Generation Electronic Interfaces
3. Çisem KIRBIYIK KURUKAVAK, *Konya Technical University*
Density Functional Theory-Guided Design of Boronic Acid-Based Self-Assembled Monolayers for ITO Modification in Organic Solar Cells
4. Esmâ YENEL DEMİR, *Konya Technical University*
Interfacial Engineering via Carbazole-Based Self-Assembled Monolayers (CbzNaph) for Efficient and Stable Inverted Perovskite Solar Cells
5. Tuğbâhan YILMAZ, *Konya Technical University*
Concentration-Dependent Effects of 4-Fluorophenylboronic Acid on P3HT:PCBM Organic Solar Cells

TT.VI.A Additive Manufacturing: from nanoscale to macro-scale - Innovation in processing technologies, materials and qualification 2/2

Co-organised with ENEA

Chairs: Giovanni DI GIROLAMO & Giuseppe BARBIERI, ENEA

1. Vincenzo MASTRONARDI, *University of Salento*
Printed and Additively Manufactured Electronics for Wearable, Implantable, and Fiber-Based Biointerfaces
2. Matilde ARONNE, *Polytechnic University of Turin*
Enabling circularity in electronic system through ceramic additive manufacturing
3. Miriam POLANO, *Polytechnic University of Turin*
Electrically conductive microstructures printed by TPP technology for electronics applications
4. Luca MONTAINA, *CNR-IMM*
Title in definition

TT.VI.B Best practice of nanotech scale up

WS.III.6

Co-organised with Polytechnic University of Turin

Chair: Andrea CAPASSO, International Iberian Nanotechnology Laboratory

1. Richard HALL-WILTON, *Fondazione Bruno Kessler (FBK)*
The Role of A Research Technology Organisation in Scaling Nanotech: examples from Fondazione Bruno Kessler's Clean Room Upgrade
2. in definition
3. in definition
4. in definition

TT.VI.C Climate-Resilient Smart Grids: Research and Innovation for the Evolution and Planning of Electrical Networks

WS.IV.9

Co-organised with ENEA

Chair: Martina CALIANO, ENEA

1. Lisa CORAZZA, *University of Padua* & Lorenzo VITULANO, *RSE*
Perspective Analysis of the Italian Transmission System in the Presence of Large-Scale HVDC Deployment
2. Alessandro VERONI, *RSE*
Advanced AC/DC converter control structures for the stability of MV distribution systems: detailed modelling and EMT simulation
3. Salvatore FABOZZI & Amedeo BUONANNO, *ENEA*
Building Energy Demand for Smart Grids: Short and Long-Term Perspectives
4. Valerio MARIANI, *ENEA*
Social-aware optimization models for the operation of multi-sector energy aggregates

TT.VI.D Nanomedicine: the benefit and the challenges of nanotechnology in health care
Co-organised with University of Modena and Reggio Emilia
Chair: in definition

1. in definition
2. in definition
3. in definition
4. in definition

TT.VI.E Nanotechnology strategies for CBRN risk mitigation and resilience 2/4
Co-organised with Sapienza University of Rome & CNR – Institute of Crystallography
Chair: Francesca PETRONELLA, CNR – Institute of Crystallography

1. Federica MITRI, *Roma Tre University & CNR - NANOTEC*
Colloidal Quantum Dots for Detection of Explosives
2. Sara CERRA, *Sapienza University of Rome*
Functional Nanomaterials for Environmental Sensing
3. Marcello LOCATELLI, *University "G. d'Annunzio" of Chieti-Pescara*
MOF-based Sensors for Gaseous Substance Detection
4. Arianna AVITABILE, *Sapienza University of Rome*
Nanostructured Optical Biosensors as Early Water Warning Systems: From Academic Research to the Market

TT.VI.F Innovations in Nano-Technologies for Extracellular Vesicle Characterization
FE.I.11
Co-organised with ISS
Chairs: Giovanna SCHIAVONI & Fabrizio MATTEI, ISS

1. Daniela RICCI, *ISS-DMI*
Application of human in vitro immune and nasal models to evaluate mRNA-lipid nanoparticles delivery and immunogenicity
2. Adriana Rosa GAMBARDELLA, *ISS-OMM*
Innovative Strategies Using Immune-Derived Extracellular Vesicles and Epigenetic Drugs: A Nano-Scale/Organ-on-Chip Framework for Melanoma Therapy
3. Benedetta NICCOLINI, *University Cattolica del Sacro Cuore*
Advancing FTIR Spectroscopy for High-Resolution Molecular Profiling of Tumor-Derived Extracellular Vesicles: Insights from a Rising Expert in Nano-Spectroscopic Technologies
4. Bianca DUMONTEL, *Department of Applied Science and Technology, Polytechnic University of Turin*
Mimicking natural extracellular vesicles to engineer targeted nanoparticles
5. **ROUND TABLE**
 Supporting and Empowering the Next Generation: How Young Innovators Are Redefining the Future of Nano Enabled Extracellular Vesicle Research

TT.VI.G FE.I.12 Impacts of Nanomaterials and New Advanced Materials on Health and Safety in the Workplace

Co-organised with INAIL
Chair: Fabio BOCCUNI, *INAIL*

1. **Introductive Keynote**
Francesca SEBASTIANI, *IIT*
Integrated approaches for occupational risk assessment of nanomaterials and advanced materials: challenges, case studies and future perspectives
2. Taljinder SINGH, *INAIL*
Micro and nanoplastics emissions during car body repair activities
3. Marco CONTI, *INAIL*
Airborne wood dust exposure scenario characterization
4. Sajjad RASMI, *Sapienza University of Rome*
CFD modelling of nanoparticles emissions in a laboratory experimental set up: preliminary results and simulations
5. Michele DE ROSA, *Sapienza University of Rome*
Integrating *Drosophila melanogaster* and NMR metabolomics for nanotoxicology studies of TiO₂ exposure
6. Eleonora MONTI, *IIT*
Smart electrochemical sensor for pathogen detection in healthcare structures

TT.VI.H WS.VII.2 in definition

1. in definition
2. in definition
3. in definition
4. in definition

TT.VI.I WS.V.2 Next-Generation Functional Semiconductors for Energy and Electronics: From Perovskites to Organic Devices 2/3

Co-organised with FBK
Chair: Imren HATAY PATIR, *Selçuk University*

1. Burak GULTEKIN, *Ege University*
Eco-Friendly Supercapacitors based on Natural Biopolymer-Derived Electrodes and Gel Polymer Electrolytes
2. Kurtuluş YILMAZ, *Konya Technical University*
Thin Film Coating of Poly(acrylic acid- vinylbenzyl chloride) as a Prime Layer for the Enhancement of Conductivity and Uniformity of PEDOT Synthesized by Vapor Phase Polymerization
3. Abdullah ZEYBEK, *Konya Technical University*
Self-Standing Superhydrophobic Thin Films Using Soft Lithography and Initiated Chemical Vapor Deposition (iCVD) Techniques
4. Metin DINMEZ, *Konya Technical University*
Fabrication and Characterization of Hydrophobic SiO_x Nanoparticle Surfaces Using Plasma-Enhanced Chemical Vapor Deposition (PECVD)

TT.VII.A WS.I.1 Integrated approach for prevention through design in nanomaterials and advanced materials production processes

Co-organised with INAIL

Chairs: Fabio BOCCUNI, INAIL & Stefania SABELLA, IIT

1. Stefania SABELLA, IIT & HIAS-UCAS University, Zhejiang, P.R. China
Introduction on the INAIL-IIT research framework "Nanokey"
2. Fabio BOCCUNI, INAIL
Prevention-through-design for nanomaterials and advanced materials production processes
3. Riccardo FERRANTE, INAIL
Critical issues for measuring workers exposure to nanomaterials by multiparametric approach
4. Francesca TOMBOLINI, INAIL
Workplace exposure scenarios characterization of 2-D airborne materials
5. in definition, BeDimensional Spa
New approaches for 2-D nanomaterials exposure quantification by integrating RAMAN and SEM techniques
6. Claudio NATALE and Saverio CAPORALINI, IIT
From exposure to risk prevention: an integrated, data-driven approach to testing and assessing occupational risks of inhaled nanomaterials

TT.VII.B WS.III.7 From Low to High TRL: Technological Challenges and System Evolution Across Research and Industry - Round Table

Co-organised with Polytechnic University of Turin

Chair and moderator: Francesco MATTEUCCI, FBK

1. Alexandre CECCALDI (Remote), ETPN
Title in definition
2. Bernardino D'AURIA
Title in definition
3. Nicola MIROTTA, CNR
Title in definition

TT.VII.C WS.IV.10 Thermal Energy Storage: main research activities at medium temperature

Co-organised with ENEA

Chair: Elisabetta Maria VECA, ENEA

1. Raffaele LIBERATORE, ENEA
Current research trends and perspectives on Thermal Energy Storage
2. Enrico PATRUCCO, RSE
Design and sizing of a demonstration plant for the analysis of the summer solar desorption process in an open-cycle thermochemical seasonal storage system
3. Daniele NICOLINI, ENEA
Study of an Electro-Thermal Energy Storage system using cement-based material with dissipative (conductive/resistive) properties
4. Raffaele LIBERATORE, ENEA
Energy characterization of cascaded sensible and latent medium-temperature thermal energy storage material modules

TT.VII.D From Memristor Physics to AI Circuits*Co-organised with University "Mediterranea" of Reggio Calabria***Chairs: Giuliana FAGGIO, Giacomo MESSINA & Massimo MERENDA, University "Mediterranea" of Reggio Calabria**

1. Massimo MERENDA, *University "Mediterranea" of Reggio Calabria*
Beyond Memory and Synapses: Memristive Circuits for Function-Centric and Communicating AI
2. Stavros G. STAVRINIDES, *Democritus University of Thrace, Greece*
From memristor dynamics to timeseries forecasting
3. Alberto ARCIELLO, *University "Mediterranea" of Reggio Calabria*
From Device Models to Circuit Design: A Hardware-Oriented Perspective on Memristive Technologies
4. Alon ASCOLI, *Polytechnic University of Turin*
Unfolding the Mechanisms behind Symmetry-Breaking Phenomena, Induced by Memristive Devices on Edge of Chaos, in Reaction-Diffusion Cellular Neural Networks

TT.VII.E Nanotechnology strategies for CBRN risk mitigation and resilience 3/4*Co-organised with Sapienza University of Rome & CNR - Institute of Crystallography***Chair: Federica ZACCAGNINI, Sapienza University of Rome**

1. Viviana FRANTELLIZZI, *Sapienza University of Rome*
Mitigating Radiological and Nuclear Hazards in Healthcare: Occupational and Patient Safety Through Emerging Nanotechnologies
2. Alberto SINIBALDI, *Sapienza University of Rome & Italian Institute of Technology*
Nanophotonic Strategies for Biological Risk Mitigation: Dual-Mode Bloch Surface Wave Biosensors for Anti-SARS-CoV-2 Antibody Detection
3. Andrea CHIURI, *ENEA*
Quantum Spectroscopy for Novel Diagnostics
4. Panel Discussion & Perspectives

TT.VII.F Advanced Transducers for Smart Sensing**FE.I.13***Co-organised with Sapienza University of Rome***Chair: Fabiana ARDUINI, University of Rome "Tor Vergata"**

1. **Introductory Keynote**
Luisa TORSI, *University of Bari*
From Ensemble Binding to Single-Molecule Statistics in large area biosensing devices
2. Luca FIORE, *Tor Vergata University of Rome*
From laboratory innovation to market-oriented diagnostics: a wearable paper-based sensor for sweat chloride determination in cystic fibrosis
3. Martina MERCURIO, *Sapienza University of Rome*
Large-Area α -MoO₃ Thin Films via Pulsed Laser Deposition for Polariton-Enhanced Infrared Molecular Sensing
4. in definition

TT.VII.G
FE.I.14

Mechanobiology

Co-organised with Sapienza University of Rome

Chair: Livia ANGELONI, Sapienza University of Rome

1. **Introductory Keynote**
Enrico Domenico LEMMA, *Campus Bio-Medico University of Rome*
Mechanobiology in Engineered 3D Microenvironments: Advanced In Vitro Platforms to decipher Cell-Matrix Interactions
2. Elena TOMASELLI, *Sapienza University of Rome*
Rheology of tumor-associated macrophages using photothermal actuation AFM
3. Giulia BAGNATO, *University of Rome Sapienza & Catholic University of the Sacred Heart*
Heterogeneity in mechanosensitivity to external mechanical loads of osteosarcoma cells with different aggressiveness
4. Li ZHANG, *IIT*
Brillouin Microscopy as a Tool for Probing Mechanics: Principles and Implementations
5. Noemi D'ABBONDANZA, *IIT*
Brillouin Microscopy as a Tool for Probing Mechanics: Biomedical Applications

TT.VII.H
WS.VI.1

Irradiation Facilities, High-Energy Physics, and Nuclear Applications

Co-organised with ENEA

Chair: Jessica SCIFO, ENEA

1. Andrea COLANGELI, *ENEA*
The Frascati Neutron Generator (FNG): an advanced radiation facility for nuclear fusion technology, material research and space applications
2. Giulia BAZZANO, *ENEA*
From Proton Beams to Space Radiation: TOP-IMPLART as a Bridge between Medicine, Technolgy and Space
3. Beatrice D'ORSI, *ENEA*
ENEA Distributed Irradiation Facility Network for Space Applications: An Integrated Platform for Multi-Radiation Testing and Qualification
4. Adriano VERNA, *ENEA*
Radiation Hardness Qualification of Scintillators for High-Energy Physics
5. Valentina PINTO, *ENEA*
Radiation Hardness of High-Temperature Superconducting Materials at Fusion Relevant Conditions

TT.VII.J WS.V.3 **Next-Generation Functional Semiconductors for Energy and Electronics: From Perovskites to Organic Devices 3/3**

Co-organised with FBK

Chair: Mujeeb U. CHAUDRHY, Durham University

1. Imren HATAY PATIR, *Selçuk University*
Photocatalytic Hydrogen Production: Recent Advances and Opportunities in Heterojunction Photocatalysts
2. Emre ASLAN, *Selçuk University*
Clay-Based Interfacial Bond Engineering: Clays as Charge-Transfer Mediators for Photo/Piezocatalytic Hydrogen Production
3. Yigit OSMAN AKYILDIZ, *Selçuk University*
Electrodeposited High-Entropy Alloy/CNT Electrocatalyst for Enhanced Hydrogen Evolution Reaction
4. Seval YILDIZ, *Selçuk University*
Rational Design and Preparation of S-Scheme Heterojunction Photocatalysts for Photocatalytic Hydrogen Production
5. Talha KURU, *Selçuk University*
In Situ Piezodeposited Noble-Metal Schottky Junctions on Laponite/ZnO for Enhanced Piezocatalytic Hydrogen Evolution
6. Zeki TARIK UNLU, *Selçuk University*
Photocatalytic hydrogen evolution by Smectite-based clay composite catalyst

TT.VII.K WS.VIII.1 **CCUS in Action: The ECCSEL ERIC Italian Nodes Contribution**

Co-organised with CNR-STEMS

Chairs: Michela ALFE & Valentina GARGIULO, CNR-STEMS

1. *in definition*
2. *in definition*
3. *in definition*
4. *in definition*

TT.VIII.A **From Research to Startup: Bridging Innovation and**
WS.III.8 **Entrepreneurship**
FE.I.15 *Co-organised with Polytechnic University of Turin*
 Chair: Mara SERRAPEDE, *Polytechnic University of Turin*

1. **Introductive Keynote**
Pietro ZACCAGNINI, *Polytechnic University of Turin*
In definition
2. Luisa BAUDINO, *Polytechnic University of Turin*
Graphene Oxide-based membranes for energy and raw materials recovery applications: a scalable journey
3. Giacomo SPISNI, *Polytechnic University of Turin & IIT*
Founding your next deep tech startup: tips and tricks from a work-in-progress
4. Simona VILLATA, *Polytechnic University of Turin*
In definition

TT.VIII.B **Nanomaterials for THz Photonics and Electronics**
Co-organised with Sapienza University of Rome
 Chair: Antonio D'ALESSANDRO, *Sapienza University of Rome*

1. Miriam VITIELLO, *Scuola Normale Superiore & CNR*
Nonlinear Terahertz Photonics in Twisted Graphene and Topological Metamaterials
2. Christian MARTELLA, *CNR*
Multidimensional Infrared-to-THz Photodetection in PtTe₂ Dirac Semimetal Schottky Junctions
3. Alessia SORGI, *European Laboratory for Non-Linear Spectroscopy*
Advances in Cryogen-Free QCL-based THz Wireless Communication
4. Filippo VELLI, *TU Dortmund University*
In definition

TT.VIII.C **Thermal Energy Storage: main research activities at high**
WS.IV.11 **temperature for industrial objectives**
Co-organised with ENEA
 Chair: Raffaele LIBERATORE, *ENEA*

1. Claudia VENDITTI, *Sapienza University of Rome*
Computational analysis of an air-based thermal energy storage system using medium-to-high temperature PCMs
2. Matteo BATTAGLIA, *Tor Vergata University of Rome*
Mixed oxides for thermochemical energy storage: study, characterization, and performance comparison
3. Annarita SPADONI, *ENEA*
Reactive Fluidized bed reactors for high-temperature thermochemical energy storage
4. Maria Anna MURMURA, *Sapienza University of Rome*
Study of an open loop thermochemical energy storage system based on the CaO/CaCO₃ reactive couple

TT.VIII.D Materials Acceleration Platforms (MAPs)*Co-organized with CNR-ISMN within the CRIOS4CET Project***Chairs: Antonio SANTAGATA & Aldo DI CARLO, CNR - Istituto di Struttura della Materia**

1. Alfredo PICANO, CNR-ISMN
The CRIOS4CET Initiative: consolidating the iENTRANCE@ENL Research Infrastructure and moving towards the Integration of Materials Acceleration Platforms (MAPs)
2. Tobias STUBHAN, SCIPRIOS GmbH
Materials Acceleration Platforms: toward the laboratory of the future for perovskite and organic PV research
3. Alessio GAGLIARDI, Technical University of Munich (TUM)
AI-Driven Workflows for Material Property Discovery
4. Rickard ARMIENTO, Linköping University
Data, AI and Interoperability for Federated Materials Acceleration Platforms

TT.VIII.E Nanotechnology strategies for CBRN risk mitigation and resilience 4/4*Co-organised with Sapienza University of Rome & CNR - Institute of Crystallography***Chair: Arianna AVITABILE, Sapienza University of Rome**

1. Antonella MACAGNANO, CNR-ITIAM - Institute of Atmospheric pollution Research
Electrofluidodynamic Engineering of Hybrid Biomass-Derived Materials for Environmental Sensing and Pollution Mitigation
2. Federica ZACCAGNINI, Sapienza University of Rome
Hybrid Plasmonic Nanostructures for Broadband Light-Driven Disinfection, Biosensing and Smart Personal Protective Equipment
3. **Round Table: Future Directions of Nanotechnology for CBRN Risk Mitigation and Resilience**
All speakers
4. Closing Remarks

TT.VIII.F Biofabrication for Clinical Translation: From Advanced Technologies to Patient-Relevant Models**FE.I.16***Co-organised with University of Magna Graecia***Chair: Michele CONTI, University of Pavia**

1. **Introductory Keynote**
Carmine GENTILE, University of Sydney & Harvard Medical School
Advanced strategies to biofabricate cardiac tissues
2. Amirhossein ELAHI, Department of Molecular Medicine, Centre for Health Technologies, University of Pavia
Development of Tunable Alginate-Gelatin Bioinks for 3D Bioprinted Triple-Negative Breast Cancer Models
3. Federico DI TOLLA, Department of Mechanical and Aerospace Engineering, Sapienza University of Rome
GelMA Microgels as a Novel Platform to Promote Pathophysiological Vascularization in Cardiac Organoids
4. Teresa BARRA, Department of Biology, University of Naples Federico II
Perfusion-Driven Vessel Organization in 3D Bioprinted Constructs Using bEnd.3 Endothelial Cells
5. Luana DI LISA, Department of Chemistry "G. Ciamician", University of Bologna
GelMA-Alginate Interpenetrating Polymeric Network (IPN) for a 3D Bioprinted Liver Model to Study Plasticizer Toxicity

TT.VIII.G Scientific and Technological Advances in Carbon Capture, WS.VIII.2 Utilisation and Storage

Co-organised with CNR-STEMS

Chairs: Michela ALFE, Valentina GARGIULO, CNR-STEMS

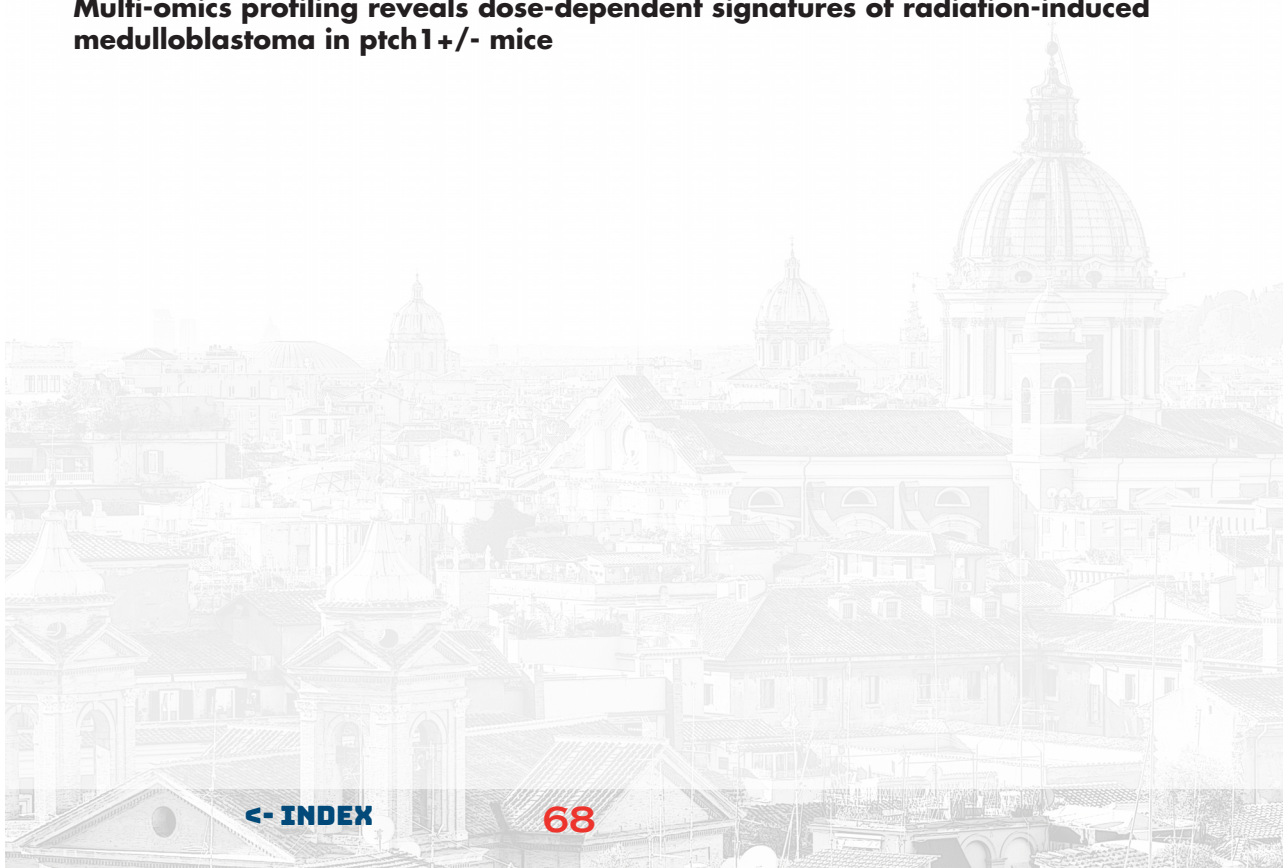
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TT.VIII.H Advanced ionizing radiation technologies for life, material WS.VI.2 sciences, and space exploration 2/2

Co-organised with ENEA

Chair: Rocco CARCIONE, ENEA

1. Emiliana MANSI, *ENEA*
Gamma irradiation as a safe decontamination tool for Cultural Heritage materials
2. Chiara Elvira MAINARDI, *ENEA*
Gamma irradiation along the agri-food chain: from crop protection to food preservation
3. Silvia BATTISTONI, *ENEA*
3D Polyethylene Glycol Diacrylate-Polyaniline Composites by ionizing radiation: An Innovative (and unexplored) technologic route for materials modification
4. Carmen DEL FRANCO, *ENEA*
Insights from the CRYPTOMARS project: Biological responses of Antarctic cryptoendolithic communities to ionizing and non-ionizing radiation
5. Ilaria DE STEFANO, *ENEA*
Multi-omics profiling reveals dose-dependent signatures of radiation-induced medulloblastoma in ptch1 +/- mice



TT.IX.A From Low to High TRL: Nanotechnology for energy and packaging 1/2*Co-organised with Polytechnic University of Turin*
Chair: in definition

1. in definition
2. in definition
3. in definition
4. in definition

TT.IX.B Italian Materials Research Infrastructures — Post-NRRP Review and Future Outlook*Co-organised with Sapienza University of Rome and CNR-ISMN within the CRIOS4CET Project*
Chair: in definition**Part I • Infrastructure spotlights (09:00-10:00)**

1. Cristina AFRICH, CNR-IOM (*Istituto Officina dei Materiali*)
NFFA-DI (Nano Foundries and Fine Analysis – Digital Infrastructure): From upgraded nanofoundries and fine-analysis facilities to a single digital entry point: FAIR data services for nanoscience users (sub-title to be confirmed)
2. Michele SAVIANO, CNR-IC (*Istituto di Cristallografia*)
ITACA.SB (Potentiating the Italian Capacity for Structural Biology Services in Instruct-ERIC): Strengthening the Italian structural biology node: integrated platforms, peer-reviewed access and the Instruct-ERIC connection (sub-title to be confirmed)
3. Fabrizio PIRRI, Politecnico di Torino e IIT CSFT@Polito (*Center for Sustainable Future Technologies*)
CoSyET (Components and Systems for Energy Transition): From laboratory devices to pilot lines: components and systems for the energy transition and their industrial users (sub-title to be confirmed)
4. Giacomo ROATI, CNR-INO (*Istituto Nazionale di Ottica*)
I-PHOQS (Integrated Infrastructure Initiative in Photonic and Quantum Sciences): An integrated national facility for photonic and quantum sciences: new capabilities, open access and the European landscape (sub-title to be confirmed)
5. Vittorio MORANDI, CNR-ISMN (*Istituto per lo Studio dei Materiali Nanostrutturati*)
iENTRANCE@ENL (Infrastructure for Energy Transition and Circular Economy @ EuroNanoLab): Six nodes, one access point: a distributed infrastructure for the energy transition and the circular economy (sub-title to be confirmed)
6. Lionello MARRELLI (*to be confirmed*), CNR-ISTP (*Istituto per la Scienza e Tecnologia dei Plasmi*)
NEFERTARI (New Equipment for Fusion Experimental Research and Technological Advancements with RFX Infrastructure): Upgrading RFX-mod2 and the national plasma laboratory network: an infrastructure route towards DTT, ITER and DEMO (sub-title to be confirmed)
7. SPEAKER *to be defined*, Università di Roma Tor Vergata
ISIS@MACH ITALIA (ISIS Materials Characterisation Hub Italia): Neutron, muon and complementary probes for materials: a distributed network of instruments, methods and expertise (sub-title to be confirmed)

Part II • Round Table (10:00-11:00)

8. Alfredo PICANO (*Chair*), CNR-ISMN (*Istituto per lo Studio dei Materiali Nanostrutturati*) & iENTRANCE@ENL
Beyond the NRRP: keeping Italian research infrastructures funded, open and industrially relevant

TT.IX.C **Frontier material and devices for energy application 1/2**
WS.IV.12 *Co-organised with ENEA*
 Chair: in definition

1. Mirko ROCCI, *Thales Alenia Space*
High-Performance Polymer Composites with 2D Fillers for Thermal Management in Space Energy Systems
2. Marco FORTUNATO, *ENEA*
DLP-printed h-BN/graphite polymer composites for thermal management: processing, functional properties and non-destructive characterization
3. Filippo AGRESTI, *CNR*
Thermodynamic, kinetic and structural characterization of Thermochemical Materials for Thermal Storage
4. Pierangela CRISTIANI, *RSE*
Can microbial corrosion affect innovative materials for renewable energy production?
5. Carmelatina PRONTERA, *ENEA*
Exploring Different LDH Synthesis Approaches toward the Development of Bifunctional Materials for ICCU Applications

TT.IX.D **From Waste to Roads: the RESCA Project Circular Solutions for Sustainable Asphalt**
WS.IX.1
Co-organised with CNR - STEMS
 Chair: Valentina GARGIULO, *CNR - STEMS* & Pietro CALANDRA, *CNR-ISMN*

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2. in definition
3. in definition
4. in definition

TT.IX.E **EU Projects related to Advanced Materials**
Co-organised with INRiM
 Chairs: Luca BOARINO & Natascia DE LEO, *INRiM*

1. Sergio BRUTTI, *Department of Chemistry, Sapienza University of Rome*
The 24GRD09 HyMetBat project: traceable metrology applied to batteries
2. Bruno TORRE, *Istituto Nazionale di Ricerca Metrologica (INRiM), Advanced Materials Metrology & Life Sciences Division*
DINAMO at Year One: Building a Digital Traceability Chain for Dimensional Nanometrology
3. Simon BERNON, *Laboratoire de photonique, numérique et nanosciences (LP2N - Bordeaux)*
MOCA: Subwavelength MW confinement in 3D and optical deconfinement in 1D
4. Gianluca FIORI, *Dipartimento di Ingegneria dell'Informazione, Università di Pisa*
The EU project 2D-ADDICT: TWO-Dimensional materials for ADvanced Devlces and low-power CompuTing

TT.IX.F FE.I.17 **Beyond Lithium Batteries: Sustainable Systems for the Electrochemical Storage of Energy**

Co-organised with ... in definition
Chair: in definition

1. **Introductory Keynote**
Gioele PAGOT, *University of Padua*
From Electrical Response to Ion Transport Mechanisms in Polymeric and Hybrid Electrolytes for Beyond-Lithium Batteries
2. in definition
3. in definition
4. in definition

TT.IX.G FE.I.18 **Nanomaterials for Sensing and Biosensing: A One Health Perspective**

Co-organised with Sapienza University of Rome
Chair: Luciano DE SIO, *Sapienza University of Rome*

1. **Introductory Keynote**
Francesca PETRONELLA, *CNR-IC*
Engineering Plasmonic Biointerfaces for Point-of-Use Environmental and Health Sensing
2. Maria Laura SFORZA, *Sapienza University of Rome*
Gene delivery is crucial for advanced
3. in definition
4. in definition

TT.IX.H **CHross Lab (DSCTM-CNR) and Heritage-LAB (Sapienza) join forces in innovative and sustainable research for the safeguarding of cultural heritage 1/2**

Co-organised with Sapienza University of Rome & CNR-DSCTM
Chair: Maria Laura SANTARELLI, *Sapienza University of Rome*

1. Maria Laura SANTARELLI, *Sapienza University of Rome*
The HERITAGE-LAB: the origin and the evolution
2. Mohammad SHARBAF, *Sapienza University of Rome*
Nanotechnology to combat salt crystallization in the Roman masonries
3. Erica SONAGLIA, *Sapienza University of Rome*
Hydrogels from wastes for the conservation
4. Emily SCHIFANO, *Sapienza University of Rome*
Microbiology and Nanotechnology as support of the conservation
5. Charles CASSIDY, *Sapienza University of Rome*
The nano-photocatalysis for the conservation of the historical buildings

TT.X.A **Micro- and nano-processes for advanced devices fabrication and packaging 2/2**
Co-organised with Polytechnic University of Turin
Chair: in definition

1. in definition
2. in definition
3. in definition
4. in definition

TT.X.B **The Role of Materials in the European Competitiveness**
FE.II.2 **Challenge**
Co-organised with APRE & AIRI
Chair: Marco FALZETTI, APRE

1. Marco FALZETTI, APRE, Director
Introduction
2. Carsten SCHIERENBECK, European Commission, Head of Unit Industrial Transformation, Prosperity Directorate, DG RTD
Materials R&I in the EU: strategies and actions. The European materials strategy – towards the 2028-2034 programming period
3. Sara ROSSI, Responsabile Accordo per la Coesione MUR, FSC 2021-2027
 Edoardo BEMPORAD, MUR, Member of the EC Technology Council for Advanced Materials
Materials research and innovation in Italy – how to represent it in full
4. Federica BONDIOLI, INSTM, President
 Gianluca FIORI, IAM-I (EU Innovative Advanced Materials Initiative), Vice President
 Ciro ROCCO, Leonardo
Better management of technologies
5. Andrea BAIRATI, AIRI, President
Closing remarks

TT.X.C **Frontier material and devices for energy application 2/2**
WS.IV.14 **Co-organised with ENEA**
Chair: Marco FORTUNATO, ENEA

1. Enrica FONTANANOVA, CNR
Polymerizable ionic liquids as building block of advanced ion-conductive membranes
2. Elisa MERCADELLI, CNR
Manufacturing Strategies for All-Ceramic Membranes for Hydrogen Separation
3. Barbara PALAZZO, ENEA
Hybrid Textile Architectures and Functionalization Strategies for Sustainable Wind Energy Composites
4. Francesca MAZZANTI, ENEA
3D-Printed TPMS Ceramic Heat Exchangers for Enhanced Thermal Recovery in Energy Production Systems
5. Francesco PINI, RSE
High-Entropy Alloys Processed by Ball Milling and Spark Plasma Sintering
6. Daniele MIRABILE GATTIA, ENEA
Additive Manufacturing of a Ferritic Alloy: heat exchange applications

TT.X.D
WS.IX.2

Waste Valorization for Next-Generation Asphalt

Co-organised with CNR - STEMS

Chairs: Cesare OLIVIERO ROSSI, *University of Calabria* & Michela ALFE, *CNR-STEMS*

1. in definition
2. in definition
3. in definition
4. in definition

TT.X.E
WS.X.3

CHross Lab (DSCTM-CNR) and Heritage-LAB (Sapienza) join forces in innovative and sustainable research for the safeguarding of cultural heritage 2/2

Co-organised with Sapienza University of Rome & CNR-DSCTM

Chair: Gabriella DI CARLO, *CNR-ISMN* & Stefano LEGNAIOLI, *CNR-ICCOM*

1. Sabrina GUALTIERI, *CNR-Institute of Science, Technology and Sustainability for Ceramics*
An unusual decoration of capodimonte porcelain fragment
2. Ilse MANET, *CNR-ISOF*
Sustainable Nanomaterials and Supramolecular Systems for Art Conservation
3. Francesca BOCCACCINI, *CNR-ISMN*
Sustainable Materials for Metal and Built Heritage Conservation
4. Chiara MOLINARI, *CNR-ISSMC*
Waste based direct ink writing for design, jewelry, accessories and ceramic heritage conservation
5. Beatrice CAMPANELLA, *ICCOM-CNR*
Designing Tailored Silver Nanoparticles for SERS-Based Analysis of Organic Dye Properties

TT.X.F
FE.I.19

Nanotechnologies for Analysis, Certification and Custom Services

Co-organised with ... in definition

Chair: in definition

1. **Introductory Keynote**
Gennaro PICARDI, *Agenzia delle Dogane e dei Monopoli*
Chemical analysis at the customs laboratories: microscopic and spectroscopic material characterization at the reduced scale
2. Elvira MARTINO, *Sapienza University of Rome*
Development and In Vitro Characterization of Peptide-Loaded Niosomes for Topical Delivery
3. Emanuela Di Biase, *University of Perugia*
Fluorescence based assessment of PEG assisted fusion between cationic liposomes and bovine milk extracellular vesicles
4. Mirandi PARISI, *University of Roma Tre*
At the intersection of plasmonics, nonlinear optics and microfluidics: chiral gold nanoparticles as a new approach to biosensing



TT.X.G
FE.I.20**Cultivating Connections: Renewable Resources and Circular Solutions for Health, Nutrition and Engineering***Co-organised with University of Magna Graecia*
Chair: Antonia MANCUSO, University of Magna Graecia

1. **Introductory Keynote**
Delia MANDRACCHIA, *University of Brescia*
Learning from Nature, Discovering through Science: A Nanosystem Platform from Natural and Renewable Resources
2. Dorotea FIORE, *University Magna Graecia of Catanzaro*
Liquid Crystal Nanocarriers for topical delivery of natural bioactive compounds: from development to biological activity
3. Caterina EVANGELISTI, *Università Politecnica delle Marche*
Innovative food-grade biinks: different applications of natural polymers in 3D bioprintingn
4. Maria Gioia FABIANO, *Sapienza University of Rome*
Essential oil-loaded chitosan liposomes as a smart strategy to extend the shelf life of blueberries
5. Ottavia PINTO, *University of Udine*
From Bone Waste to Environmental Remediation: Hydroxyapatite-Based Materials for Metal Immobilization



TT.XI.A in definition

1. in definition
2. in definition
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4. in definition

TT.XI.B FE.II.3 Critical Space Technologies and European Non-Dependence: Open Innovation from Advanced Materials to Qualified Systems Chair: in definition

Part I • From policy to qualified systems

1. Fabio VITO BELLO *(to be confirmed)*, European Commission, DG DEFIS
Critical space technologies and European non-dependence: the policy framework and the road ahead
2. Simon Silvio CONTICELLO *(to be confirmed)*, HaDEA
From calls to qualified results: managing European projects on critical space technologies
3. SPEAKER *in definition*, Thales Alenia Space
Advanced materials in space system integration: qualification requirements and their effect on the supply chain
4. SPEAKER *in definition*, Leonardo
From laboratory maturity to mission readiness: enabling technologies along the industrial chain
5. SPEAKER *in definition*, SME *in definition*
A SME perspective: advanced composites and the industrial qualification path
6. SPEAKER *in definition*, Research organization *in definition*
Research infrastructures at the service of space qualification: access, testing and data for industrial users

Part II • Round Table

7. Chair to be defined
Open collaboration, protected technology: securing Europe's space supply chain

TT.XI.C Carbon Dioxide Removal and CCUS: Towards Integrated WS.IV.15 Carbon Management 1/2

Co-organised with ENEA

Chair: Nicola LiSI and Silvano DEL GOBBO, ENEA

1. Marialuisa GRILLI & Umberto PASQUAL LAVERDURA, *ENEA*
Introduction
2. Stefano STENDARDO, *SNAM*
CCUS Sandbox – derisking innovative carbon management technologies
3. Stefania MOIOLI, *Politecnico di Milano*
A feasibility study of application of BECCS to a WtE plant in Italy
4. Andrea DI CARLO, *Università dell'Aquila*
Design, Development, and Experimental Validation of a Biomass and Plastic Waste Gasification System Integrated with CO₂ Capture and Utilization (CCU)
5. Michela ALFE', *CNR-STEM*
Upcycling Carbon-rich waste into advanced CO₂ capture adsorbents
6. Daniele FERRARIO, *Politecnico di Milano*
Title in definition

TT.XI.D in definition

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TT.XI.E in definition

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TT.XI.F 4D Printing: Smart Materials and Responsive Structures FE.I.21 Co-organised with University of Magna Graecia Chair: Delia MANDRACCHIA, University of Brescia

1. **Introductive Keynote**
Stefano PANDINI, *University of Brescia*
The Fourth Dimension in Manufacturing: 4D Printing and 4D-Textiles
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4. in definition



TT.XI.G
FE.I.22

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TT.XI.H **in definition**

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TT.XII.A in definition

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TT.XII.B in definition

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TT.XII.C Carbon Dioxide Removal and CCUS: Towards Integrated Carbon WS.IV.16 Management 2/2

Co-organised with ENEA

Chair: Nicola LISI & Silvano DEL GOBBO, ENEA

1. Nicola LISI & Silvano DEL GOBBO, ENEA
Introduction
2. Virginia SIGNORINI, *Università di Bologna*
From CO₂ Separation to Transport: Polymeric Membranes and the role of non-metallic component in high-pressure CO₂
3. Eugenio MELONI, *Università di Salerno*
Electrically assisted POCS-catalytic reactor with integrated dense Pd-Ag membrane for low-carbon hydrogen production via dry reforming of methane
4. Benedetta DE CAPRARIS, *Università La Sapienza*
Use of solid sorbents for HCl and H₂S removal from syngas at ambient and elevated pressures
5. Alessio VAROTTO, ENEA
PGM-free and PGM based nanocatalysts for CO₂ valorization

TT.XII.D in definition

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TT.XII.E in definition

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TT.XII.F Emerging technologies for advanced therapeutics

FE.I.23

Co-organised with University of Magna Graecia

Chair: Emanuela Fabiola CRAPARO, University of Palermo

1. **Introductive Keynote**
Nina BONO, *Polytechnic University of Milan*
Innovative strategies for non-viral gene delivery: mechanobiology to overcome biological barriers
2. Flaminia FRUZZETTI, *Polytechnic University of Milan*
Boosting non-viral gene delivery by osmotic shock: mechanistic insights into nucleic acid-dependent transfection efficiencies
3. Sofia BONSIGNORE, *University of Palermo*
Nebulized polysaccharide-based polyplexes unlock efficient pulmonary RNAi therapy
4. Beatrice PELLEGRINI, *University Magna Graecia of Catanzaro*
Fibroblast-derived extracellular vesicles preserve a Hyaluronic Acid/CD44-associated extracellular matrix signature and contribute to dermal-epidermal communication
5. Francesca CADAMURO, *University of Milano-Bicocca*
Glycoengineered 3D Bioprinted Glioblastoma Models: From In Silico Design to Personalized Medicine Application

TT.XII.G

FE.I.24

1. in definition
2. in definition
3. in definition
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5. in definition

YOUNGINNOVATION

The State of Research communicated by Young Researchers

16 - 17 - 18 September

Chairs:

Donatella PAOLINO, *University Magna Graecia of Catanzaro*
Marco ROSSI, *Sapienza University of Rome*

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Antonio D'ALESSANDRO, *Sapienza University of Rome*
Francesca PETRONELLA, *CNR-IC*
Michele CONTI, *University of Pavia*
Maria Chiara CRISTIANO, *University Magna Graecia of Catanzaro*

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General coordination:



SAPIENZA
UNIVERSITÀ DI ROMA

YoungInnovation - NanoInnovation's dedicated space for the next generation of scientists

Researchers have always been at the forefront of addressing complex global challenges. That's why NanoInnovation is deeply committed to encouraging the participation of young researchers (under 35) within the scientific community while also supporting their careers through dedicated mentoring activities.

Born from this commitment, YoungInnovation has grown into a semi-independent event in its own right. Now in its 7th edition, it will take place from 16 to 18 September 2026, and year after year it continues to expand - welcoming an ever-growing number of leading contributors and shining a spotlight on the researchers of tomorrow.

What to expect

YoungInnovation is a focused, three-day programme built around 90-minute sessions and structured into two parallel tracks covering the event's core thematic areas: Life Sciences and Materials Sciences.

Each session follows a clear and engaging format:

An introductory talk (max. 30 min.) by a senior researcher, offering a state-of-the-art overview of the session theme
Four short presentations (max. 7 min. each) by young researchers sharing the results of their ongoing work
A concluding round-table discussion (approx. 30 min.), with an open Q&A between young and senior researchers
In addition to the parallel tracks, a number of joint interdisciplinary sessions will foster dialogue and collaboration across both fields.

Session topics have been carefully selected by the Chairs and the NanoInnovation Organizing Committee, who have also appointed the members of both the Young Innovation Scientific Committee and the Organizing Committee.

Why it matters

YoungInnovation is more than a featured event, it's a platform for emerging scientists to share their research, forge meaningful connections, and find inspiration. It serves as both a showcase for cutting-edge studies and a catalyst for the kind of cross-disciplinary collaboration that drives science forward.

YoungInnovation 2026 brings together the most promising talents in Life Sciences and Materials Sciences for three dynamic days at the intersection of discovery and community.

09:00 - 10:30

FE.I.1

Microfabrication of PV devicesChair: Danilo DINI, *Sapienza University of Rome*

- | | |
|---|--|
| 1 | Introductive Keynote
Diego COLOMBARA, <i>UniGe</i>
Beyond conventional lithography |
| 2 | Marco PICCINNI, <i>UniGe</i>
Ferrofluid Lithography: Reviewing and Evolving Paradigm in Electroplating |
| 3 | Sood MOHIT, <i>AVANCIS</i>
Title in definition |
| 4 | Shahbazi FATEMEH (Online), <i>IIT</i>
Title in definition |
| 5 | ARTEGIANI Elisa, <i>University of Verona</i>
CdTe solar cells: from Cu to group V doping |

Round table on the Topic

09:00 - 10:30

FE.I.2

Bio-Nano Interface: From gene delivery to precision diagnostic

Chair: in definition

- | | |
|---|---|
| 1 | Introductive Keynote
Anna Laura CAPRIOTTI, <i>Sapienza University of Rome</i>
A Decade of the Liposome-Protein Corona: Lessons Learned and Future Breakthroughs in Theranostics |
| 2 | Erica QUAGLIARINI, <i>Sapienza University of Rome</i>
Precision Medicine at the Nanoscale: the Role of Nanoparticle-Protein Corona in Diagnostics |
| 3 | Francesca GIULIMONDI, <i>Sapienza University of Rome</i>
Artificial Protein Corona for Enhanced LNP Gene Delivery to Glioblastoma |
| 4 | Serena RENZI, <i>Sapienza University of Rome</i>
Exploiting the Protein Corona for Functional LNP Design and Hepatic Gene Silencing |
| 5 | Siyao XIAO, <i>Sapienza University of Rome</i>
Characterizing the Protein Corona of PEG-Reduced LNPs for Gene Delivery |

Round table on the Topic

11:30 - 13:00

FE.I.3

PV devices of new conception with hybrid organic-inorganic materials

Chair: Giulia GRANCINI, *University of Pavia*

- | | |
|---|---|
| 1 | Introductive Keynote
Aldo DI CARLO, <i>CNR-ISM</i>
Title in definition |
| 2 | Elham GHAVIDEL, <i>University of Rome "Tor Vergata"</i>
Effects of Ultrathin Seed Layers in Thermally Evaporated Perovskite Solar Cells |
| 3 | Elisa NONNI, <i>University of Rome "Tor Vergata"</i>
Title in definition |
| 4 | Simone FILIPPI, <i>University of Pavia</i>
Static Antisolvent Processing for Scalable and Sustainable Perovskite Photovoltaics |
| 5 | Riccardo PALLOTTA, <i>Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU)</i>
From Single Crystals to Functional Devices: Metal Halide Perovskite Materials and Junctions |

Round table on the Topic

11:30 - 13:00

FE.I.4

Precision Nanomedicine

Chair: Nicola D'AVANZO, *University of Magna Graecia*

- | | |
|---|--|
| 1 | Introductive Keynote
Marzia DE SANTO, <i>NanoSilica srl, SpinOff Unical</i>
HER2-Targeted Mesoporous Silica Nanoparticles for Doxorubicin Delivery |
| 2 | Sofia MIGANI, <i>University of Camerino</i>
Different liposomal formulations of selected copper(II) complex bearing amantadine: synthesis, characterization and biological evaluation |
| 3 | Ludovica LUCCHESI PALLI, <i>University of Palermo</i>
Engineering Carbon Nanodots for Precision Theranostics: Dual-Mode Imaging Combined with Enhanced Photothermal Therapy |
| 4 | Francesca Romana STACCHINI, <i>Sapienza University of Rome</i>
Non-Invasive Alzheimer's Diagnosis by Innovative BODIPY-Based Ocular Delivery |
| 5 | Jacopo FORTE, <i>Catholic University of Sacred Heart</i>
Development and In Vitro/Ex Vivo Evaluation of an innovative Chitosan-Based Bioadhesive Nanoemulsion Platform for Localized Treatment of skin infection |

Round table on the Topic

14:00 - 15:30

FE.I.5

Functional nanostructures and complex interfaces for sensing at the physical limits

Chair: Antonio D'ALESSANDRO, *Sapienza University of Rome*

- | | |
|---|--|
| 1 | Introductory Keynote
Gaetano SCAMARCIO, <i>CNR-NANO & University of Bari Aldo Moro</i>
Emergent Cooperative Response to Single-Molecule Affinity Binding in Large-Area Biolayers |
| 2 | Eleonora MACCHIA, <i>University of Bari</i>
Title in definition |
| 3 | in definition |
| 4 | in definition |
| 5 | in definition |

Round table on the Topic

14:00 - 15:30

FE.I.6

Bridging the gap: 3D and advanced models for nanomedicine and tissue regeneration

Chairs: Laura CATENACCI & Michela SORRENTI, *University of Pavia*

- | | |
|---|---|
| 1 | Sara PERTEGHELLA, <i>University of Pavia, Department of Drug Sciences</i>
In vitro models for nose-to-brain delivery studies applied to nanoformulations
Virginie SOTTILE, <i>University of Pavia, Department of Molecular Medicine</i>
Preclinical models of stem cell differentiation and tissue formation |
| 2 | Edoardo BERTANIA, <i>University of Piemonte Orientale</i>
One platform, multiple carriers: microfluidics for nanoparticle- and vesicle-based drug delivery |
| 3 | Sofia BELLIA, <i>University of Palermo</i>
Nanomedicine for brain drug delivery: from design to microfluidic and 3D neurospheroid models |
| 4 | Rachele ROSSI, <i>University of Pavia</i>
Nucleic acid-loaded lipid nanoparticles optimization and interaction with biological substrates |
| 5 | Federica TIBERIO, <i>Università Cattolica del Sacro Cuore</i>
Nano-ink-mediated RNA therapy for non-invasive treatment of craniofacial disorders |

Round table on the Topic

16:00 - 17:30

FE.I.7

Space Missions and Nanotech: Advancements

Chair: in definition

- | | |
|---|--|
| 1 | Introductive Keynote
Mirko ROCCI, <i>Thales Alenia Space</i>
Advanced Nanomaterials and Quantum Devices: Enabling Technologies for Future Space Missions |
| 2 | Mousa Ali AL-RBAIEH, <i>GST</i>
Advanced Micro and Nano Characterization: Lead and Lead-Free Solder Joints for Cutting-Edge Space Applications |
| 3 | Laura VERDOLINI, <i>Sapienza University of Rome</i>
Surface Functionalization Modulates the Antifungal Performance of Silver Nanoparticles |
| 4 | Margherita IZZI, <i>ENEA</i>
Surface engineering of UHMWPE ropes with tungsten-based polyimide coatings for aerospace radiation shielding applications |
| 5 | in definition |

Round table on the Topic

16:00 - 17:30

FE.I.8

Innovative Nanomaterials: Illuminating the Path to Precision Medicine 1/2

Chair: Francesca PETRONELLA, *CNR-IC*

- | | |
|---|---|
| 1 | Introductive Keynote
Luciano DE SIO, <i>Sapienza University of Rome</i>
Photothermal nanomedicine: from cancer therapy to on-demand drug delivery |
| 2 | Vincenzo de MEI, <i>Sapienza University of Rome</i>
Selective Photothermal Therapy of Glioblastoma with Anti-EGFR-Functionalized Gold Nanorods in a 3D Optical Setup Operating in the First Biological Window |
| 3 | Martina GORCHILOVA, <i>Sapienza University of Rome</i>
Gold Nanorod-Functionalized Smart Patches for Light-Triggered On-Demand Drug Delivery |
| 4 | Federico PURIFICATO, <i>Scuola Normale Superiore</i>
Hybrid Boron-Gold Nanoarchitectures for Boron Neutron Capture Therapy |
| 5 | in definition |

Round table on the Topic

Cocktail & Social

09:00 - 10:30

FE.I.9

Innovative materials for electrochemical applications

Chair: Margherita MORENO, ENEA

- | | |
|---|---|
| 1 | Introductory Keynote
Gianna APPETECCHI, ENEA
In definition |
| 2 | Alyssa MANCINI, Sapienza University of Rome
Understanding Structural and Electrochemical Degradation in Li-Rich Cathodes |
| 3 | Daniele STELLATI, ENEA
Bi-reforming of methane powered by Induction heating on 3D additively manufactured gamma-alumina monoliths |
| 4 | Cheikh Reda BERNAOUI, Sapienza University of Rome
A Metal-Free PEO-LiNO₃ Interlayer for Uniform Lithium Deposition on Bare Copper Current Collectors in Anode-Less Lithium-Metal Batteries |
| 5 | in definition |

Round table on the Topic

09:00 - 10:30

FE.I.10

Technology Transfer in Nanotech

Chair: Christian CELIA, University of Magna Graecia

- | | |
|---|---|
| 1 | Introductory Keynote
Agnese RUDZATE, University of Latvia, Riga, Latvia
Latvia Finally Opens a New Chapter in Science Commercialisation: What Does It Mean for Researchers, Universities, Industry and Investors? |
| 2 | Elisa RAVESIO, Polytechnic University of Turin
Scaling Up Silicon-Dominant Anodes: Rheological Control and Bio-Based Binders for Pilot-Scale Battery Electrode Manufacturing |
| 3 | Simona VILLATA, Polytechnic University of Turin
SelSkin: Advancing Human-Relevant Skin Models for Next-Generation Preclinical Research |
| 4 | Jorge MONTERO, Sapienza University of Rome
Design of Bifunctional Electrocatalysts for Unitized Regenerative Fuel Cells |
| 5 | Myriam D'ALU', Sapienza University of Rome
Direct Recycling Approaches for the Recovery and Regeneration of Cathode Materials |

Round table on the Topic

11:30 - 13:00		FE.I.11
Innovations in Nano-Technologies for Extracellular Vesicle Characterization		
Chairs: Giovanna SCHIAVONI & Fabrizio MATTEI, ISS		
1	Introductive Keynote Daniela RICCI, ISS-DMI Application of human in vitro immune and nasal models to evaluate mRNA-lipid nanoparticles delivery and immunogenicity	
2	Adriana Rosa GAMBARDELLA, ISS-OMM Innovative Strategies Using Immune Derived Extracellular Vesicles and Epigenetic Drugs: A Nano-Scale/Organ-on-Chip Framework for Melanoma Therapy	
3	Benedetta NICCOLINI, University Cattolica del Sacro Cuore Advancing FTIR Spectroscopy for High Resolution Molecular Profiling of Tumor Derived Extracellular Vesicles: Insights from a Rising Expert in Nano Spectroscopic Technologies	
4	Bianca DUMONTEL, Department of Applied Science and Technology, Polytechnic University of Turin Mimicking natural extracellular vesicles to engineer targeted nanoparticles	
5	ROUND TABLE Supporting and Empowering the Next Generation: How Young Innovators Are Redefining the Future of Nano Enabled Extracellular Vesicle Research	
Round table on the Topic		
11:30 - 13:00		FE.I.12
Impacts of Nanomaterials and New Advanced Materials on Health and Safety in the Workplace		
Chair: Fabio BOCCUNI, INAIL		
1	Introductive Keynote Francesca SEBASTIANI, IIT Integrated approaches for occupational risk assessment of nanomaterials and advanced materials: challenges, case studies and future perspectives	
2	Taljinder SINGH, INAIL Micro and nanoplastics emissions during car body repair activities	
3	Marco CONTI, INAIL Airborne wood dust exposure scenario characterization	
4	Sajjad RASMI, Sapienza University of Rome CFD modelling of nanoparticles emissions in a laboratory experimental set up: preliminary results and simulations	
5	Michele DE ROSA, Sapienza University of Rome Integrating Drosophila melanogaster and NMR metabolomics for nanotoxicology studies of TiO₂ exposure	
6	Eleonora MONTI, IIT Smart electrochemical sensor for pathogen detection in healthcare structures	
Round table on the Topic		

14:00 - 15:30

FE.I.13

Advanced Transducers for Smart Sensing

Chair: Fabiana ARDUINI, *University of Rome "Tor Vergata"*

1	Introductive Keynote Luisa TORSI, <i>University of Bari</i> From Ensemble Binding to Single-Molecule Statistics in large area biosensing devices
2	Luca FIORE, <i>Tor Vergata University of Rome</i> From laboratory innovation to market-oriented diagnostics: a wearable paper-based sensor for sweat chloride determination in cystic fibrosis
3	Martina MERCURIO, <i>Sapienza University of Rome</i> Large-Area α-MoO₃ Thin Films via Pulsed Laser Deposition for Polariton-Enhanced Infrared Molecular Sensing
4	in definition
5	in definition

Round table on the Topic

14:00 - 15:30

FE.I.14

Mechanobiology

Chair: Livia ANGELONI, *Sapienza University of Rome*

1	Introductive Keynote Enrico Domenico LEMMA, <i>Campus Bio-Medico University of Rome</i> Mechanobiology in Engineered 3D Microenvironments: Advanced In Vitro Platforms to decipher Cell-Matrix Interactions
2	Elena TOMASELLI, <i>Sapienza University of Rome</i> Rheology of tumor-associated macrophages using photothermal actuation AFM
3	Giulia BAGNATO, <i>University of Rome Sapienza & Catholic University of the Sacred Heart</i> Heterogeneity in mechanosensitivity to external mechanical loads of osteosarcoma cells with different aggressiveness
4	Li ZHANG, <i>IIT</i> Brillouin Microscopy as a Tool for Probing Mechanics: Principles and Implementations
5	Noemi D'ABBONDANZA, <i>IIT</i> Brillouin Microscopy as a Tool for Probing Mechanics: Biomedical Applications

Round table on the Topic

16:00 - 17:30

FE.I.15

From Research to Startup: Bridging Innovation and Entrepreneurship

Chair: Mara SERRAPEDE, *Polytechnic University of Turin*

- | | |
|---|---|
| 1 | Introductory Keynote
Pietro ZACCAGNINI, <i>Polytechnic University of Turin</i>
In definition |
| 2 | Luisa BAUDINO, <i>Polytechnic University of Turin</i>
Graphene Oxide-based membranes for energy and raw materials recovery applications: a scalable journey |
| 3 | Giacomo SPISNI, <i>Polytechnic University of Turin & IIT</i>
Founding your next deep tech startup: tips and tricks from a work-in-progress |
| 4 | Simona VILLATA, <i>Polytechnic University of Turin</i>
In definition |
| 5 | in definition |

Round table on the Topic

16:00 - 17:30

FE.I.16

Biofabrication for Clinical Translation: From Advanced Technologies to Patient-Relevant Models

Chair: Michele CONTI, *University of Pavia*

- | | |
|---|--|
| 1 | Introductory Keynote
Carmine GENTILE, <i>University of Sydney & Harvard Medical School</i>
Advanced strategies to biofabricate cardiac tissues |
| 2 | Amirhossein ELAHI, <i>Department of Molecular Medicine, Centre for Health Technologies, University of Pavia</i>
Development of Tunable Alginate-Gelatin Bioinks for 3D Bioprinted Triple-Negative Breast Cancer Models |
| 3 | Federico DI TOLLA, <i>Department of Mechanical and Aerospace Engineering, Sapienza University of Rome</i>
GelMA Microgels as a Novel Platform to Promote Pathophysiological Vascularization in Cardiac Organoids |
| 4 | Teresa BARRA, <i>Department of Biology, University of Naples Federico II</i>
Perfusion-Driven Vessel Organization in 3D Bioprinted Constructs Using bEnd.3 Endothelial Cells |
| 5 | Luana DI LISA, <i>Department of Chemistry "G. Ciamician", University of Bologna</i>
GelMA-Alginate Interpenetrating Polymeric Network (IPN) for a 3D Bioprinted Liver Model to Study Plasticizer Toxicity |

Round table on the Topic

Cocktail & Social

09:00 - 10:30

FE.I.17

Beyond Lithium Batteries: Sustainable Systems for the Electrochemical Storage of Energy

Chair: in definition

1 **Introductive Keynote**
Gioele PAGOT, *University of Padua*
From Electrical Response to Ion Transport Mechanisms in Polymeric and Hybrid Electrolytes for Beyond-Lithium Batteries

2 in definition

3 in definition

4 in definition

5 in definition

Round table on the Topic

09:00 - 10:30

FE.I.18

Nanomaterials for Sensing and Biosensing: A One Health Perspective

Chair: Luciano DE SIO, Sapienza University of Rome

1 **Introductive Keynote**
Francesca PETRONELLA, *CNR-IC*
Engineering Plasmonic Biointerfaces for Point-of-Use Environmental and Health Sensing

2 Maria Laura SFORZA, *Sapienza University of Rome*
Gene delivery is crucial for advanced

3 in definition

4 in definition

5 in definition

Round table on the Topic

11:30 - 13:00		FE.I.19
Nanotechnologies for Analysis, Certification and Custom Services		
Chair: in definition		
1	Introductive Keynote Gennaro PICARDI, <i>Agenzia delle Dogane e dei Monopoli</i> Chemical analysis at the customs laboratories: microscopic and spectroscopic material characterization at the reduced scale	
2	Elvira MARTINO, <i>Sapienza University of Rome</i> Development and In Vitro Characterization of Peptide-Loaded Niosomes for Topical Delivery	
3	Emanuela Di Biase, <i>University of Perugia</i> Fluorescence based assessment of PEG assisted fusion between cationic liposomes and bovine milk extracellular vesicles	
4	Mirandi PARISI, <i>University of Roma Tre</i> At the intersection of plasmonics, nonlinear optics and microfluidics: chiral gold nanoparticles as a new approach to biosensing	
5	in definition	
Round table on the Topic		

11:30 - 13:00		FE.I.20
Cultivating Connections: Renewable Resources and Circular Solutions for Health, Nutrition and Engineering		
Chair: Antonia MANCUSO, <i>University of Magna Graecia</i>		
1	Introductive Keynote Delia MANDRACCHIA, <i>University of Brescia</i> Learning from Nature, Discovering through Science: A Nanosystem Platform from Natural and Renewable Resources	
2	Dorotea FIORE, <i>University Magna Graecia of Catanzaro</i> Liquid Crystal Nanocarriers for topical delivery of natural bioactive compounds: from development to biological activity	
3	Caterina EVANGELISTI, <i>Università Politecnica delle Marche</i> Innovative food-grade biinks: different applications of natural polymers in 3D bioprinting	
4	Maria Gioia FABIANO, <i>Sapienza University of Rome</i> Essential oil-loaded chitosan liposomes as a smart strategy to extend the shelf life of blueberries	
5	Ottavia PINTO, <i>University of Udine</i> From Bone Waste to Environmental Remediation: Hydroxyapatite-Based Materials for Metal Immobilization	
Round table on the Topic		

14:00 - 15:30		FE.I.21
4D Printing: Smart Materials and Responsive Structures		
Chair: Delia MANDRACCHIA, <i>University of Brescia</i>		
1	Introductive Keynote Stefano PANDINI, <i>University of Brescia</i> The Fourth Dimension in Manufacturing: 4D Printing and 4D-Textiles	
2	in definition	
3	in definition	
4	in definition	
5	in definition	
Round table on the Topic		

14:00 - 15:30		FE.I.22
Title in definition		
Chair: in definition		
1	Introductive Keynote in definition	
2	in definition	
3	in definition	
4	in definition	
5	in definition	
Round table on the Topic		

16:00 - 17:30		FE.I.23
Emerging technologies for advanced therapeutics		
Chair: Emanuela Fabiola CRAPARO, <i>University of Palermo</i>		
1	Introductive Keynote Nina BONO, <i>Polytechnic University of Milan</i> Innovative strategies for non-viral gene delivery: mechanobiology to overcome biological barriers	
2	Flaminia FRUZZETTI, <i>Polytechnic University of Milan</i> Boosting non-viral gene delivery by osmotic shock: mechanistic insights into nucleic acid-dependent transfection efficiency	
3	Sofia BONSIGNORE, <i>University of Palermo</i> Nebulized polysaccharide-based polyplexes unlock efficient pulmonary RNAi therapy	
4	Beatrice PELLEGRINI, <i>University Magna Graecia of Catanzaro</i> Fibroblast-derived extracellular vesicles preserve a Hyaluronic Acid/CD44-associated extracellular matrix signature and contribute to dermal-epidermal communication	
5	Francesca CADAMURO, <i>University of Milano-Bicocca</i> Glycoengineered 3D Bioprinted Glioblastoma Models: From In Silico Design to Personalized Medicine Application	
Round table on the Topic		

16:00 - 17:30		FE.I.24
Title in definition		
Chair: in definition		
1	Introductive Keynote in definition	
2	in definition	
3	in definition	
4	in definition	
5	in definition	
Round table on the Topic		
Cocktail & Social		

IX Edition

OPEN INNOVATION & OPEN SCIENCE

From Investment to Impact: Research Infrastructures, Advanced Materials and Critical Space Technologies for European Competitiveness

18 September

Organized by:



ASSOCIAZIONE
ITALIANA
PER LA RICERCA
INDUSTRIALE



SAPIENZA
UNIVERSITÀ DI ROMA

Now in its ninth edition, Open Innovation & Open Science returns as the traditional closing Joint Event of NanolInnovation, bringing together research organisations, universities, European and national institutions, large companies, SMEs and professional associations for a full day of presentations and debate. As the investment phase of Italy's National Recovery and Resilience Plan draws to a close, the 2026 edition shifts the focus from capacity building to long-term impact: how newly strengthened research infrastructures, scientific capabilities and industrial ecosystems can become sustainable, interconnected and accessible drivers of innovation and competitiveness.

The morning sessions will address two closely related dimensions. The first will review the capabilities developed by Italy's research infrastructures for materials and enabling technologies and the conditions required for their future operation, including sustainable funding, open and transnational access, FAIR data interoperability, skills, industrial engagement and the effective participation of small and medium enterprises. The second will examine the strategic role of advanced materials in Europe's competitiveness, industrial resilience and technological autonomy, within the evolving framework of the Materials Act, the future European research and innovation programme and the European Competitiveness Fund.

The afternoon programme will extend this discussion to critical space technologies, exploring how advanced materials and enabling technologies can progress from research results to qualified, scalable and mission-ready solutions. Particular attention will be devoted to collaborative models connecting European programmes, research organisations, system integrators and technology-intensive SMEs, as well as to the balance between openness, intellectual property protection, security requirements and European technological non-dependence.

Closing a thread that runs through the conference week — from the Joint Forum on the new frontiers of space on 14 September to the round table on research infrastructures at work on 15 September — and by linking infrastructures, policy and industrial implementation, the event will identify shared priorities and concrete messages for national and European decision-makers. The 2026 edition is dedicated to the memory of Luigi "Gino" Nicolais, a long-standing mentor of NanolInnovation and a protagonist of previous editions of this Joint Event.

09:00 - 10:30

FE.11.1

ITALIAN RESEARCH INFRASTRUCTURES FOR MATERIALS AND ENABLING TECHNOLOGIES - POST-NRRP REVIEW AND FUTURE OUTLOOK

Co-organised with Co-organised with Sapienza University of Rome and CNR-ISMN within the CRIOS4CET Project

Chair: in definition

Italy's National Recovery and Resilience Plan (NRRP) has enabled a major upgrade of distributed research infrastructures serving materials science, nanotechnology, photonics, quantum science, structural biology, energy materials and devices, neutron- and muon-based characterisation, plasma and fusion technologies and advanced imaging. As the investment phase draws to a close, the central challenge is moving from capital deployment to durable scientific and industrial impact. This session brings together some of the most relevant funded research infrastructures to compare newly acquired capabilities, user communities and early results, while addressing the conditions required for long-term operation. The session is organised in two parts. In the first part, seven concise infrastructure spotlights of about eight minutes each outline what has been built, which results are already verifiable and what remains to be secured. The second part is a dedicated round table, chaired by Alfredo Picano (CNR-ISMN, iENTRANCE@ENL), on sustainable funding, open and transnational access, FAIR (Findable, Accessible, Interoperable, Reusable) data interoperability, skills, industrial engagement and alignment with European research infrastructure roadmaps. The session will conclude by identifying shared priorities and concrete messages for national and European decision-makers.

Part I • Infrastructure spotlights (09:00-10:00)

1	Cristina AFRICH, CNR-IOM (Istituto Officina dei Materiali) NFFA-DI (Nano Foundries and Fine Analysis – Digital Infrastructure): From upgraded nanofoundries and fine-analysis facilities to a single digital entry point: FAIR data services for nanoscience users (sub-title to be confirmed)
2	Michele SAVIANO, CNR-IC (Istituto di Cristallografia) ITACA.SB (Potentiating the Italian Capacity for Structural Biology Services in Instruct-ERIC): Strengthening the Italian structural biology node: integrated platforms, peer-reviewed access and the Instruct-ERIC connection (sub-title to be confirmed)
3	Fabrizio PIRRI, Politecnico di Torino e IIT CSFT@Polito (Center for Sustainable Future Technologies) CoSyET (Components and Systems for Energy Transition): From laboratory devices to pilot lines: components and systems for the energy transition and their industrial users (sub-title to be confirmed)
4	Giacomo ROATI, CNR-INO (Istituto Nazionale di Ottica) I-PHOQS (Integrated Infrastructure Initiative in Photonic and Quantum Sciences): An integrated national facility for photonic and quantum sciences: new capabilities, open access and the European landscape (sub-title to be confirmed)
5	Vittorio MORANDI, CNR-ISMN (Istituto per lo Studio dei Materiali Nanostrutturati) iENTRANCE@ENL (Infrastructure for Energy Transition and Circular Economy @ EuroNanoLab): Six nodes, one access point: a distributed infrastructure for the energy transition and the circular economy (sub-title to be confirmed)
6	Lionello MARRELLI (to be confirmed), CNR-ISTP (Istituto per la Scienza e Tecnologia dei Plasmi) NEFERTARI (New Equipment for Fusion Experimental Research and Technological Advancements with RFX Infrastructure): Upgrading RFX-mod2 and the national plasma laboratory network: an infrastructure route towards DTT, ITER and DEMO (sub-title to be confirmed)
7	SPEAKER to be defined, Università di Roma Tor Vergata ISIS@MACH ITALIA (ISIS Materials Characterisation Hub Italia): Neutron, muon and complementary probes for materials: a distributed network of instruments, methods and expertise (sub-title to be confirmed)

Part II • Round Table (10:00-11:00)

8	Alfredo PICANO (Chair), CNR-ISMN (Istituto per lo Studio dei Materiali Nanostrutturati) & iENTRANCE@ENL Beyond the NRRP: keeping Italian research infrastructures funded, open and industrially relevant
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11:30 - 13:00

FE.II.2

THE ROLE OF MATERIALS IN THE EUROPEAN COMPETITIVENESS CHALLENGE

Co-organised with APRE & AIRI

Chair: Marco FALZETTI, APRE

Research and innovation on materials is one of the key drivers of Europe's competitiveness, sustainability and industrial resilience. Technologies based on advanced materials underpin the major transitions now under way – energy, digital, industrial and security – and act as an enabler for numerous strategic value chains, from energy to mobility, from aerospace to the life sciences, through to digital technologies and advanced manufacturing.

2026 is shaping up to be a particularly significant year for the materials sector. The forthcoming publication of the Materials Act by the European Commission will be an important policy milestone in defining the role that advanced materials are expected to play in future European strategies for competitiveness, strategic autonomy and industrial resilience. This initiative forms part of a broader redefinition of European research and innovation policy, in which the debate on the future Framework Programme (2028-2034) and its relationship with the new European Competitiveness Fund (ECF) is still open.

Within this framework, a number of uncertainties remain: how enabling technologies such as advanced materials will be positioned and supported in the future European research and innovation architecture; the relationship between research, technological development, industrial scale-up and competitiveness; and the role that collaborative instruments will continue to play, in particular the future of the European partnerships. Among these, the fate of IAM-I, the European partnership dedicated to innovative and advanced materials, is of particular relevance, as in recent years it has provided an important space for coordination between industry, research and the European institutions.

Italy has high-quality scientific expertise, infrastructures, companies and production chains, and has significantly strengthened its materials ecosystem thanks to NRRP (PNRR) investments and growing participation in European programmes. There nonetheless remains a need to develop a more integrated and systemic vision, one able to overcome the existing fragmentation, create synergies between public and private actors and strengthen Italy's positioning in the European debate.

The event aims to offer a space for dialogue between institutions, research and industry in order to examine the evolution of European policies and to position them as effectively as possible within the relevant national context.

1	Marco FALZETTI, APRE, Director Introduction
2	Carsten SCHIERENBECK, European Commission, Head of Unit Industrial Transformation, Prosperity Directorate, DG RTD Materials R&I in the EU: strategies and actions. The European materials strategy – towards the 2028-2034 programming period
3	Sara ROSSI, Responsabile Accordo per la Coesione MUR, FSC 2021-2027 Edoardo BEMPORAD, MUR, Member of the EC Technology Council for Advanced Materials Materials research and innovation in Italy – how to represent it in full
4	Federica BONDIOLI, INSTM, President Gianluca FIORI, IAM-I (EU Innovative Advanced Materials Initiative), Vice President Ciro ROCCO, Leonardo Better management of technologies
5	Andrea BAIRATI, AIRI, President Closing remarks

14:00 - 15:30

FE.II.3

CRITICAL SPACE TECHNOLOGIES AND EUROPEAN NON-DEPENDENCE: OPEN INNOVATION FROM ADVANCED MATERIALS TO QUALIFIED SYSTEMS

Chair: in definition

Europe's technological sovereignty in space depends on its ability to transform advanced materials, components and enabling technologies into qualified, scalable and mission-ready solutions. The session brings together European institutions, major system integrators and specialised SMEs to discuss how collaborative R&I can bridge the gap between research, industrial qualification and operational deployment. It is organised in two parts. In the first part (60 minutes), six short talks set out the policy and programme framework and then follow the path from material to qualified system as it is actually travelled by primes and by technology-intensive SMEs. The second part (30 minutes) is a round table on resilient European supply chains, technology transfer and the balance between open collaboration, intellectual property, security and regulated information. Industrial experiences will provide the basis for identifying priorities for future European programmes and for strengthening Italy's role in the space technology ecosystem.

Part I • From policy to qualified systems

1	Fabio VITO BELLO <i>(to be confirmed)</i> , European Commission, DG DEFIS Critical space technologies and European non-dependence: the policy framework and the road ahead
2	Simon Silvio CONTICELLO <i>(to be confirmed)</i> , HaDEA From calls to qualified results: managing European projects on critical space technologies
3	SPEAKER <i>in definition</i> , Thales Alenia Space Advanced materials in space system integration: qualification requirements and their effect on the supply chain
4	SPEAKER <i>in definition</i> , Leonardo From laboratory maturity to mission readiness: enabling technologies along the industrial chain
5	SPEAKER <i>in definition</i> , SME <i>in definition</i> A SME perspective: advanced composites and the industrial qualification path
6	SPEAKER <i>in definition</i> , Research organization <i>in definition</i> Research infrastructures at the service of space qualification: access, testing and data for industrial users

Part II • Round Table

7	Chair to be defined Open collaboration, protected technology: securing Europe's space supply chain
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CLOSING COCKTAIL IN THE CLOISTER

A moment to say goodbye and look forward to the 10th edition of Nanoinnovation 2027

DIGITAL FORGE CAMP

Research, teaching and digital innovation
From the research object to the learning object — from evidence to competence

14 - 18 September

Organized by Sapienza University of Rome

1. Overview

Where the pressure has landed

Universities have rarely been asked to change so much about the way they teach, and rarely had so little time set aside to think about it. Three transformations arrived within a few years of one another, and none of them waited for a curriculum reform.

The first is data. Research now produces evidence in volumes and formats that no lecture was built to carry: instrument streams, image collections, simulation outputs, datasets that exist in more versions than anyone has counted. Europe answered with the FAIR principles — findable, accessible, interoperable, reusable — and in most institutions FAIR has been received as a compliance obligation bolted onto the end of a project. It is that. It is also something said far less often: the precondition for a research result to be teachable at all. A dataset that cannot be found, opened and understood by someone who was not in the laboratory can be taught by exactly one person, its author, and only for as long as they remember it.

The second is artificial intelligence, which entered the lecture hall before any university had decided what it was for. Students brought it in; teaching staff followed; the institutional response is still, in many places, a document about academic misconduct. Meanwhile the technology has moved from generating text to carrying out tasks — retrieving, planning, drafting, assessing. The useful questions are no longer whether to permit it, but narrower and harder ones: what a model actually does to a scientific document, where the sources went, and who is answerable when a machine drafts a syllabus, marks an exercise, or answers a student at two in the morning.

The third is recognition. A degree certifies a moment. A competence has to stay current across decades of working life, and the system Europe is building around micro-credentials and interoperable badges is an attempt to make that visible. It works on one condition: that the badge carries the evidence behind it. Otherwise it certifies attendance, which every institution already knows how to do.

None of the three belongs to a single discipline, and none is settled by adding a course to a curriculum or running a refresher session on tools. They converge on one practical operation that universities perform badly, because almost nobody is trained to perform it: turning a research object into a learning object.

ALM@ — the network behind the Camp

That operation is what ALM@ exists to make routine. The Advanced Learning Multimedia Alliance for Inclusive Academic Innovation is a Digital Education Hub funded by the European Union — NextGenerationEU under the Italian National Recovery and Resilience Plan, Mission 4 Component 1, Investment 3.4 on advanced university teaching and skills, Digital Education Hubs sub-investment (ID DEH2023-00012, CUP E68H24000430006). It brings together thirteen Italian public universities and one higher education institution in art and music, with nine associated partners, coordinated by the University of Naples Federico II through its Federica Web Learning centre. Sapienza University of Rome is a partner of the Hub, and that is where this Featured Event comes from.

The purpose of the Hub is to gather Italian university and academic teaching into a single digital space, and to make it accessible anywhere and to anyone: modular, free of charge and of high quality — learning conceived as something that accompanies a person through the phases of a life rather than the years of an enrolment. Its catalogue is deliberately plural in format: MOOCs and webinars, master programmes and workshops, remote laboratories, podcasts, smart guides, entire degree programmes.

Five principles hold the network together, and each of them leaves a visible mark on the design of the Camp.

- **Convergence.** In-person and online teaching are treated as one environment. The Camp is physical during the week of NanoInnovation and digital, and permanent, afterwards: lessons are built as forty-five-minute units, recorded for possible post-production so that what happens in Rome in September could become an item in the ALM@ catalogue.
- **Knowledge building.** The Hub invests in the skills of the people who make teaching. The Camp is addressed to doctoral candidates, early-career researchers, academic and technical staff: FAIR data management, instructional design, multimedia production, assessment. It trains those who will go on to design digital education themselves.
- **Modularity and scalability.** Sixteen independent teaching units, each delivered with its own descriptive sheet, learning outcomes and supporting materials, and therefore usable as a standalone learning object.
- **Openness.** Participation with no requirement of institutional membership and no age barrier; materials released under open licence; competences recognised through interoperable Open Badges; accessibility compliance for everything produced.
- **Innovation.** Two working demonstrators, each assembled on two workstations and staffed for three consecutive days: artificial intelligence is not described, it is shown in operation, with its limits and its verification procedures on display.

2 • How the Digital Forge Camp 2026 is structured

The Camp unfolds in distinct moments across the week of NanoInnovation. Digital Forge Camp 2026 is the Featured Event as a whole: an opening session and a round table inside the Sapienza PNRR Forum on Monday 14, a two-day school — The Learning Shift — on Wednesday 16 and Thursday 17, and a demonstration room open to every visitor on Friday 18. All activities take place at the Faculty of Civil and Industrial Engineering of Sapienza University of Rome.

MONDAY 14 SEPTEMBER

Session I of the Sapienza PNRR Forum

The Digital Forge Camp opens inside the Sapienza PNRR Forum, whose first afternoon session is given over to innovation in teaching and learning. Two talks set the frame: what the availability of open, documented research data changes in the way a discipline is taught, and what artificial intelligence is already doing to the work of designing, delivering and assessing a course. Between them they establish the vocabulary the rest of the week uses — FAIR data, learning objects, micro-credentials — and the reason the three pressures are treated together rather than as three separate policy files. Titles, speakers and exact times are confirmed in the final programme.

THE ROUND TABLE

The talks are followed by a round table moderated by a science journalist, with a panel drawn from universities, research bodies, industry and public institutions. The discussion moves across artificial intelligence in education, the skills the labour market is already asking for, the digital university and lifelong learning, the relationship between universities and industry, Open Badges and open education — all of it within the wider question of innovation and the demands it places on the way people are trained. Because it carries the strand on innovation in teaching, the round table belongs to the programme of the Digital Forge Camp, which it opens.

WEDNESDAY 16 and THURSDAY 17 SEPTEMBER THE SCHOOL

THE LEARNING SHIFT

A Digital Forge Camp for Learning and Teaching Innovation

SYNOPSIS

Innovation in university teaching is the point where three transformations, so far separate, converge: the availability of open, documented research data; the spread of artificial intelligence tools in the hands of teachers and students alike; and the European and national demand for competences that can be certified and updated over an entire working life. None of the three concerns a single discipline, and none of the three is settled by a refresher course on tools.

Addressed first of all to doctoral candidates and early-career researchers, The Learning Shift starts from a precise challenge: those who produce new knowledge must also be able to make it learnable, verifiable, accessible and transferable. This community occupies a decisive position between research, teaching and the professions: today it contributes to producing knowledge; tomorrow it will be called upon to teach it, communicate it, assess it and turn it into competences.

The Digital Forge Camp format turns this challenge into an intensive, collaborative environment. Over four half-days, data, papers, protocols, cases and research questions become material for designing learning experiences. Vision talks, demonstrations and cross-disciplinary exchange take participants from the research object to the learning object, up to the definition of observable and recognisable results.

The school explores how open data, documented according to the FAIR principles (findable, accessible, interoperable, reusable), can feed new teaching practices; how AI can support design, tutoring, feedback and assessment while keeping responsibilities and choices visible; and how micro-credentials and other forms of certification can make competences legible and open to updating. It is the FAIR principles that make a research object reusable by those who did not produce it: the technical condition of the passage to the learning object. Methods, languages, technologies, accessibility and participation are treated as parts of the same ecosystem.

The Learning Shift creates a space in which experiences born in different disciplines meet, cross-fertilise and become shared heritage. A shift from individual practice to the collective capacity to innovate university teaching, preparing a new generation of researchers able to produce knowledge and put it into circulation.

THE TRAJECTORY From the research object to the learning object – from evidence to competence.

Four half-days, eight blocks of ninety minutes, sixteen lessons of forty-five minutes. Forty places, free of charge, assigned through a public call on the basis of curriculum, motivation and coherence of the applicant's path. No age requirement operates as an exclusion — earlier career stages are given priority — and the selection attends to gender balance, to the plurality of institutions represented and to participation from the regions of southern Italy.

The progression is deliberate. It starts from what can be seen working — the two demonstrators — then goes back to the methodological foundation that makes them possible, the FAIR data object; it moves on to the design and production of digital teaching; and it closes with the conditions that guarantee quality, accessibility and recognition.

The school programme

Time	Lesson (indicative title)
Module 1 • Wednesday 16, morning - What can be seen working: two demonstrators and the aerospace case	
09:00 - 09:45	Playground 1 • RITA: an AI study companion grounded in the course materials Andrea STERBINI, Sapienza University of Rome
09:45 - 10:30	Playground 2 • VM2026: CAD and CFD simulation as a learning environment Renato PACIORRI, Sapienza University of Rome
<i>Long break — demonstrations at the four workstations, in groups and networking</i>	
11:30 - 12:15	The responsible use of AI in aerospace Mauro VALORANI, Sapienza University of Rome
12:15 - 13:00	AI for MATH: teaching, learning and beyond Maria Rosaria LANCIA & Alessandro BILE, Sapienza University of Rome
<i>Light lunch — demonstration workstations staffed</i>	

Module 2 • Wednesday 16, afternoon — FAIR data as the infrastructure of knowledge	
14:00 - 14:45	The FAIR principles: findable, accessible, interoperable, reusable (speaker to be announced)
14:45 - 15:30	Metadata, controlled vocabularies and persistent identifiers (speaker to be announced)
<i>Coffee break — demonstration workstations open</i>	
16:00 - 16:45	Data Management Plans and the life cycle of research data (speaker to be announced)
16:45 - 17:30	Repositories, licences, interoperability and reuse; FAIRness indicators (speaker to be announced)

Module 3 · Thursday 17, morning — Artificial intelligence: from the model to the classroom

09:00 - 09:45	Building Multimodal AI in Europe: from Supercomputers to Trustworthy Models Lorenzo BARALDI, <i>University of Modena and Reggio Emilia</i>
09:45 - 10:30	One AI, multiple places, multiple times: an introduction to federated and continual learning Angelo PORRELLO, <i>University of Modena and Reggio Emilia</i>
<i>Long break — demonstrations at the four workstations, in groups and networking</i>	
11:30 - 12:15	Simulation and digital twins as learning environments: from traffic modelling to Smart Road implementation (title to be confirmed) Gaetano FUSCO, <i>Sapienza University of Rome</i>
12:15 - 13:00	How an Agent is Born: Architecture, Structural Limits and Data Governance in Generative AI Systems (title to be confirmed) Simone SCARDAPANE, <i>Sapienza University of Rome</i>
<i>Light lunch — demonstration workstations staffed</i>	

Module 4 · Thursday 17, afternoon — Making it learnable: immersive environments, quality and recognition

14:00 - 14:45	Title to be confirmed Luca IOCCHI, <i>Sapienza University of Rome</i>
14:45 - 15:30	Reconstructing the Ancient City: Archaeological Data, Digital Models and Immersive Technologies (title to be confirmed) Paolo CARAFA, <i>Sapienza University of Rome</i>
<i>Coffee break — demonstration workstations open</i>	
16:00 - 16:45	Designing for the online classroom: environments, materials, and the mediation between teacher and learner (title to be confirmed) Simone TORSANI, <i>University of Genoa</i>
16:45 - 17:30	Bridging the Skills Gap in STEM: Extended Reality, Digital Twins, and AI-Driven Education Krutik Manish PANDYA, <i>SemiXR LLC, Phoenix, Arizona, USA</i>

WEDNESDAY 16 TO FRIDAY 18 SEPTEMBER**THE PLAYGROUND ROOM**

The classroom and the exhibition space are the same room, equipped once for the whole week. Two playgrounds, each assembled on two workstations: four staffed positions in all. During the two days of the school the room is a classroom, and the workstations are open during the long morning break and staffed through the other breaks. On Friday 18 the room is given over entirely to the playgrounds and opens to all NanoInnovation visitors; the opening hours of the public day are confirmed in the final programme. The scientific content and the datasets are contributed by the teaching staff and by the research groups involved. What is demonstrated is real work.

Playground 1 • RITA: an AI study companion grounded in the course materials

As a complement to the lessons, two workstations are given over to RITA — Ripassa In Tutta Autonomia, “revise independently” — an educational chatbot built on retrieval-augmented generation (RAG) and developed within the ALM@ project (PNRR Mission 4). The workstations will be configured with teaching materials from courses in Sapienza’s Master’s degree programme in Aerospace Engineering, allowing participants to interact with the system just as they would in their own studies: asking questions about course content and receiving accurate answers grounded in the instructor’s materials, requesting the generation of exercises with correct data and being guided step by step through solving them without the solution being revealed, and uploading their own work to get feedback and correction suggestions. Unlike general-purpose chatbots, RITA answers exclusively on the basis of the teaching materials provided by the instructor, reducing the risk of hallucinations and ensuring consistency with the course syllabus. The goal is to give participants hands-on experience of what a personalised virtual assistant can do when it is available at any hour and integrated directly into the university’s Moodle platform.

Playground 2 • VM2026: CAD and CFD simulation as a learning environment

A further two workstations give access to the VM2026 platform, in guided sessions with the pre-installed simulation software. The available software includes: ANSA, a CAE pre-processor for preparing geometric models and generating high-performance meshes; CFD++, a computational fluid dynamics solver for compressible, incompressible, turbulent and reactive flows; Tecplot 360 EX, post-processing and graphical visualisation software for simulation results; Nastran and Patran, respectively a solver and a pre/post-processing environment for finite element structural analysis; and MATLAB and Simulink, for numerical computation and dynamic system simulation. A number of features and tools have been implemented within the platform to make the use of the various software packages more accessible to all users.

3 • Access, registration and information

Access and registration

Attendance at the round table and at the open demonstration day follows the general rule of NanolInnovation 2026 — free of charge, upon online registration on this website. Admission to the school is regulated by the public call, which will be published on this page. On Wednesday and Thursday the demonstration workstations are part of the school; on Friday the room is open to every registered visitor of NanolInnovation.

Applying to the school

Applications are submitted through a dedicated online form, which will be available shortly at this link. Submitting an application does not guarantee admission: selected applicants will be asked to confirm their place and to complete the general NanolInnovation registration.

Selection

Selection runs in two stages. Applications received by Tuesday 1 September 2026 are examined together at the close of that window: the assessment weighs the fit between the applicant’s profile and the themes of the school, the reasons given, and the aim of composing a group that is mixed by discipline and by institution. Outcomes are communicated by email by Thursday 3 September.

On any places still free, applications remain open and are examined as they arrive, with an answer within a few days; where the fit is equal, order of arrival decides. Applications close when the forty places are filled, and in any case no later than Thursday 10 September 2026.

Recording and certification

The lessons are recorded, with the consent of speakers and participants, for possible post-production and inclusion in the ALM@ catalogue; the materials are released under an open licence. Participants who attend at least three of the four half-days receive a certificate of attendance and an interoperable Open Badge issued within the ALM@ framework. Consistently with the principle set out at the opening of this document — a badge is worth what the evidence behind it is worth — the badge records both attendance and the work produced during the school.

Funding

ALM@ — Advanced Learning Multimedia Alliance for Inclusive Academic Innovation — is funded by the European Union — NextGenerationEU under the Italian National Recovery and Resilience Plan, Mission 4 Component 1, Investment 3.4, Digital Education Hubs sub-investment (ID DEH2023-00012, CUP E68H24000430006).

- PS.01** Ibrar AHMAD, *Sapienza University of Rome*
Metal Halide Perovskite Single Crystal for Medical Imaging Systems Radiation Detectors
- PS.02** Batuhan ATAY, *Eskisehir Technical University*
Impact of Al Doping on ZnO Nanoplate Photoanodes for DSSCs
- PS.03** Jaromír BAČAČOVSKÝ, *Delong Instruments*
Low-Voltage Electron Microscopy in Nanomedicine: From Drug-Delivery Nanocarriers to Iodinated Nanoparticles for Stroke Theranostics
- PS.04** Federico BALDUINI, *Sapienza University of Rome*
Fabrication of Functional Devices from Single Crystals using Focused Ion Beam
- PS.05** Katia BARBARO, *ENEA*
Molecular Biocompatibility and Surface-Processing Effects of PETG Bio-Interfaces for Advanced Biomedical Applications
- PS.06** Beatrice BATTISTINI, *Istituto Superiore di Sanità*
Alternative and sustainable testing: ex vivo human skin explants for nanomaterials dermal absorption assessment
- PS.07** Mariangela BELLUSCI, *ENEA*
Fe₃O₄-Modified CALF-20 Framework for Selective CO₂N₂ Separation and Magnetic Regeneration
- PS.08** Asia BORDIGNON, *Sapienza University of Rome*
Nanostructured Plasmonic Optical Biosensor for Point-of-Care Migraine Diagnosis via CGRP Detection
- PS.09** Carmela BORRIELLO, *ENEA*
Sustainable manufacturing of Nonwoven Recovered Carbon Fiber Mat via Aqueous polymer Processing
- PS.10** Benedetta BRUGNOLI, *Sapienza University of Rome*
Hydrophobic Engineering of CALF-20 Through Sustainable Synthetic and Post-Synthetic Strategies
- PS.11** Delia CAVALLO, *INAIL*
No-invasive biomarkers of early effects for long-term monitoring of workers employed in a nanomaterials research laboratory
- PS.12** Santiago CHAVES CORDOBA, *Universidad del Cauca*
Stabilization of Quadruple Perovskite CaCu₃Fe₂Ru₂O₁₂ Thin Films via Epitaxial Strain using PLD
- PS.13** Hak-Jong CHOI, *Korea Institute of Machinery and Materials*
Low-Loss All-Dielectric TiO₂ Metamirrors via Wafer-Scale Nanoimprinting for Full-Color Microdisplays
- PS.14** Myriam D'ALÙ, *ENEA*
Direct Recycling Approaches for the Recovery and Regeneration of Cathode Materials
- PS.15** Eleonora D'INTINO, *Sapienza University of Rome*
Liposomal Delivery of the STING Agonist diABZI: Formulation, Characterization, and Induction of Type I Interferon Responses in Mouse and Human Tumor-Immune Models
- PS.16** Vincenzo DE MEI, *Sapienza University of Rome*
Selective Photothermal Therapy of Glioblastoma with Anti-EGFR-Functionalized Gold Nanorods in a 3D Optical Setup Operating in the First Biological Window
- PS.17** Emanuela DI BIASE, *University of Perugia*
Fluorescence-based assessment of PEG-assisted fusion between cationic liposomes and bovine milk extracellular vesicles
- PS.18** Maria Gioia FABIANO, *Sapienza University of Rome*
Essential oil-loaded chitosan liposomes as a smart strategy to extend the shelf life of blueberries
- PS.19** Claudia FAGLIARONE, *ENEA*
Regolith-Based Biocomposites for Space ISRU: From Raman Spectroscopy to Microbial Consolidation
- PS.20** Valerio FICCA, *ENEA*
Low-Temperature Hard Carbons from Italian Waste Biomass for Sustainable Sodium-Ion Battery Anodes
- PS.21** Lorenzo FIORENTINI, *Università Politecnica delle Marche*
Highly sensitive liquid crystal-based biosensor for quantitative detection of proteins
- PS.22** Francesca FOLITI, *APRE - Agenzia per la Promozione della Ricerca Europea*
De-fragmenting the European Advanced Materials Ecosystem: the InnoMatSyn Project
- PS.23** Celestino FONTANETO, *ITI Omar*
Liesegang Self-Organization of Hydroxyapatite Nanoparticles for Bone Regeneration and Drug Delivery
- PS.24** Jacopo FORTE, *Catholic University of Sacred Heart*
Development and In Vitro/Ex Vivo Evaluation of an innovative Chitosan-Based Bioadhesive Nanoemulsion Platform for Localized Treatment of skin infection

- PS.25** Emiliano FRATINI, *ENEA*
Hydrogenated Nanodiamonds as Radiosensitizers for the Treatment of Radioresistant Medulloblastoma: Impact of Nanoparticle Properties and Radiation Energy
- PS.26** Lorenzo FRESCHI, *ENEA*
node-Electrolyte Integration Techniques For Proton-Conducting Fuel Cell Manufacturing
- PS.27** Maria GAMBELLI, *CNR-IFN*
A Silicon-Germanium Terahertz Quantum Cascade Detector
- PS.28** Martina GORCHILOVA, *Sapienza University of Rome*
Gold Nanorod-Functionalized Smart Patches for Light-Triggered On- Demand Drug Delivery
- PS.29** Miryam GULINO, *ENEA*
RF Magnetron Sputtered Nanometric Pd-Ag Coatings for Corrosion Protection of Titanium and Stainless Steel Bipolar Plates in PEM Fuel Cells
- PS.30** Pierpaolo IOVANE, *ENEA*
Preliminary Treatment of Titanium alloy Scrap for Additive Manufacturing Applications
- PS.31** Margherita IZZI, *ENEA*
Surface engineering of UHMWPE ropes with tungsten-based polyimide coatings for aerospace radiation shielding applications
- PS.32** Hyun Suk JUNG, *Sungkyunkwan University (SKKU)*
All Green Solvent Process for Environmentally Benign and Efficient Perovskite Photovoltaics
- PS.33** Artis KINENS, *University of Latvia*
Pyridinium luminophores in development of biogenic amine sensors
- PS.34** Claudio LAROSA, *ENEA*
Calcium Zirconate Dispersed in Mayenite: Synthesis, Characterization, and Enhanced High-Temperature Structural Stability
- PS.35** Francesca LIMOSANI, *ENEA-C. Ricerche Casaccia*
Optimizing Geopolymer Matrices for Radioactive Liquid Organic Waste Conditioning within the EURAD-2 project
- PS.36** Angela LONGO, *National Research Council (IPCB-CNR)*
Scalable Deposition of 2D Nanomaterials on Flexible Substrates
- PS.37** Alyssa MANCINI, *ENEA*
Understanding Structural and Electrochemical Degradation in Li-Rich Cathodes
- PS.38** Valentina MANGOLINI, *IRCCS Fondazione Don Carlo Gnocchi ETS*
Portable SERS-Raman Spectroscopy of Saliva for the Differential Diagnosis of Neurodegenerative Disorders
- PS.39** Luca MARCHIOL, *University of Udine*
Safe-and-Sustainable-by-Design Nanofertilizers for Efficient Nitrogen Use and Occupational Safety in Agriculture
- PS.40** Elvira MARTINO, *Sapienza University of Rome*
Development and In Vitro Characterization of Peptide-Loaded Niosomes for Topical Delivery
- PS.41** Martina MERCURIO, *Sapienza University of Rome*
Large-Area α -MoO₃ Thin Films via Pulsed Laser Deposition for Polariton-Enhanced Infrared Molecular Sensing
- PS.42** Sofia MIGANI, *Istituto Superiore di Sanità*
Different liposomal formulations of selected copper(I) complex bearing amantadine: synthesis, characterization and biological evaluation
- PS.43** Riccardo MISCIOSCIA, *ENEA*
Additive Manufacturing of Functional Battery Cell Spacers for Enhanced Thermal Management and Safety in Electric Vehicle Battery Modules
- PS.44** Jorge MONTERO, *ENEA*
Low-Pt Bifunctional Electrocatalysts for Unitized Regenerative Fuel Cells
- PS.45** Eleonora MONTI, *Istituto Italiano di Tecnologia (IIT)*
Smart electrochemical sensor for pathogen detection in healthcare structures
- PS.46** Elena PALMIERI, *Institute for Microelectronics and Microsystems (IMM)*
Gamma Irradiation Stability of Ethyl Cellulose Foils for Sustainable and Sterilizable Material Platforms
- PS.47** Miranda PARISI, *Università di Roma Tre*
At the intersection of plasmonics, nonlinear optics and microfluidics: chiral gold nanoparticles as a new approach to biosensing
- PS.48** Umberto PASQUAL LAVERDURA, *ENEA*
Intensified biomass-to-hydrogen conversion by sorption-enhanced gasification coupled with hot gas cleaning: from residual feedstocks to a clean, H₂-rich syngas

- PS.49** Aurora PATRIZI, *Scuola Normale Superiore*
Polydopamine-Based Nanoparticles as Versatile Platforms for Advanced Lateral Flow Diagnostics
- PS.50** Raffaella PECCI, *Istituto Superiore di Sanità*
GelMA -based nanocomposite film loaded with Neomycin sulphate and Carvacrol in Halloysite nanotubes against Staphylococcus aureus skin infections
- PS.51** Domantas PECKUS, *Kaunas University of Technology*
Optical and Electrical Properties of ZnO Tetrapod/Metal–Organic Framework Hybrid Structures
- PS.52** Evgeniya PESHKOVA, *University of Genova Medical School*
Nanoscale characterization of protein Langmuir-Blodgett thin films and multilayers
- PS.53** Paula Stefana PINTILEI, *Sapienza University of Rome*
Supramolecular Hydroge and Chitosan-Thyme NPs: Integrated Biocompatibility and Antimicrobial Activity
- PS.54** Ottavia PINTO, *University of Udine*
From Bone Waste to Environmental Remediation: Hydroxyapatite-Based Materials for Metal Immobilization
- PS.55** Karlis PLEIKO, *National Institute of Research and Innovation*
From Enrichment to Quantification: A Competitive Playoff Approach to In Vivo Peptide Ligand Selection
- PS.56** Emanuela PROIETTI MANCINI, *ENEA*
Electron beam irradiation of ABS/lunar regolith composites at the REX facility: radiation shielding performance within the Space It Up! project
- PS.57** Federico PURIFICATO, *Scuola Normale Superiore*
Hybrid Boron-Gold Nanoarchitectures for Boron Neutron Capture Therapy
- PS.58** Elisa RAVESIO, *Politecnico di Torino*
Scaling Up Silicon-Dominant Anodes: Rheological Control and Bio-Based Binders for Pilot-Scale Battery Electrode Manufacturing
- PS.59** Érica RENNÓ BISCALCHIM, *São Paulo State University*
Synthesis and application of nanoparticles as seed priming: a technological innovation aimed at sustainable agriculture
- PS.60** Francesco RIZZO, *Sapienza University of Rome*
Preliminary Fresh-State Assessment of a Geopolymer Matrix for RLOW Simulant Conditioning within the EURAD-2 Project
- PS.61** Davide SANGALETTI, *INAIL*
Paper-Based Luminescent Filters for Workplace Exposure Assessments: A Low-Cost, Smart Solution to Monitor Airborne Nanomaterials
- PS.62** Melissa SANTI, *Istituto Nanoscienze (NANO-CNR)*
Multicomponent Nanosystem for Low-Dose, Low-Energy X-Ray-Activated Cancer Treatment
- PS.63** Mihai SERBANESCU, *INFLPR*
3D Vectorial Measurement System for Magnetic Fields
- PS.64** Maria Laura SFORZA, *Sapienza University of Rome*
Plasmonic biosensor for the detection of oligonucleotides released from stimuli-responsive nanodelivery systems from stimuli-responsive nanodelivery systems
- PS.65** Francesca Romana STACCHINI, *Sapienza University of Rome*
Non-Invasive Alzheimer's Diagnosis by Innovative BODIPY-Based Ocular Delivery
- PS.66** Daniele STELLATI, *ENEA*
Structured Co-Ni Catalysts Prepared by Additive Manufacturing for Induction-Heated Methane Bi-reforming
- PS.67** Muhammad TAHIR, *Sapienza University of Rome*
Optical study of Hydrogen Diffusion and Hydrogenation-Driven Bandgap Engineering in InN Nanowires
- PS.68** Loredana TAMMARO, *ENEA*
Effect of Recycled Carbon Fiber Content on the Properties of Polypropylene Composite Filaments for Additive Manufacturing
- PS.69** Paola TASSONE, *INAIL*
Evolution of EU-Funded Research on Occupational Health and Safety in Nanotechnologies: Insights from Framework Programmes (from FP5 – to Horizon 2020)
- PS.70** Laura TORREIRI DI TULLIO, *ISS*
Electron Paramagnetic Resonance assessment of gold nanorod-enhanced radiosensitization in glioblastoma cells
- PS.71** Francesca VARSANO, *ENEA C. R. Casaccia*
Structured Co-Ni Catalysts Prepared by Additive Manufacturing for Induction-Heated Methane Bi-reforming

- PS.72** Laura VERDOLINI, *Sapienza University of Rome*
Surface Functionalization Modulates the Antifungal Performance of Silver Nanoparticles
- PS.73** Veronica VIGHETTO, *Politecnico di Torino*
Extracellular vesicles from 3D skin models: an emerging platform for clinical applications
- PS.74** Simona VILLATA, *Politecnico di Torino*
SelSkin: Advancing Human-Relevant Skin Models for Next-Generation Preclinical Research
- PS.75** Roman VITER, *University of Latvia*
Smart Luminescent Pyridinium-Based Epoxy Coatings for Early-Stage Structural Damage and Ice Detection in Wind Turbine Blades
- PS.76** Lorenzo Carmine VITULANO, *ENEA*
Development of an Integrated Methodology for Power Expansion Planning Using an OPF Tool Chain
- PS.77** Ionela Cristina VOINEA, *University of Bucharest*
Does green synthesis shape the epigenetic response to TiO₂ nanoparticles?
- PS.78** Kurtulus YILMAZ, *Konya Technical University*
Thin Film Coating of Poly(acrylic acid-vinylbenzyl chloride) as a Prime Layer for the Enhancement of Conductivity and Uniformity of PEDOT Synthesized by Vapor Phase Polymerization
- PS.79** Ludmila ŽÁRSKÁ, *Czech Advanced Technology and Research Institute (CATRIN)*
Biological Evaluation of CD44-Targeted Graphene Oxide Nanocarriers for Selective Doxorubicin Delivery
- PS.80** Adriano ZERBINI, *ENEA C.R. Frascati*
Substrate-enhanced photoluminescence of colour centres in lithium fluoride film-based detectors for gamma-ray dosimetry

LATE POSTERS

- LS.01** Amirhossein ELAHI, *University of Pavia*
Development of Tunable Alginate–Gelatin Bioinks for 3D Bioprinted Triple-Negative Breast Cancer Models
- LS.02** Antonio Alessio LEONARDI, *Università degli studi di Messina*
Light-Emitting Silicon Nanowires: A Versatile Platform for Photonic, Biological, and Environmental Sensing
- LS.03** Lucia SARCINA, *University of Bari Aldo Moro*
Next-Gen Portable Bio-Electronics: Unlocking Single-Molecule Bio-Recognition at the Physical Limit

BREAKOUT SESSIONS

14 - 18 September

Breakout Sessions: where NanolInnovation gets personal

Some of the most memorable moments at NanolInnovation don't happen on the main stage. They happen in the **Breakout Sessions** — the agile, focused format that has become one of the most distinctive features of the conference, and that will once again enrich the programme of **NanolInnovation 2026** (Rome, 14–18 September).

A Breakout Session is a compact thematic session running in parallel with the main programme, curated by experts, institutional partners, research projects or companies. Each one zooms in on a single topic, project or community — a format deliberately designed to break out of the classic conference schedule and create a more direct, interactive setting. Typical formats include showcases of national and European projects (Horizon Europe, COST Actions, PNRR partnerships and research infrastructures), focused technical presentations, meetings of scientific networks and clusters, and pitches from young researchers, laboratories and start-ups.

For participants, this is where the conference becomes personal. In a small-room setting you can talk directly with project coordinators, discover results before they reach the journals, and explore collaboration and funding opportunities with the people actually driving the work. For young researchers in particular, Breakout Sessions are one of the easiest ways into the NanolInnovation community.

For organisers, a Breakout Session offers a dedicated slot fully integrated into the official programme, in front of a broad, multidisciplinary audience of researchers, technologists, entrepreneurs and investors — an ideal instrument for the dissemination and exploitation activities required by European and national projects. In 2026, with special emphasis on the post-PNRR landscape and on the role of Artificial Intelligence in deep-tech development, these sessions will be a key space to discuss how our community sustains innovation in the years ahead.

Proposals can be submitted through your personal account on the conference website. Participation, as always, is free upon online registration.

Break out of the box — join us in Rome, 14–18 September 2026.

14 SEPTEMBER

17:45 - 19:15 NEST Award BO.1.A	
Chair: in definition	
BO.1.A.1	in definition
BO.1.A.2	in definition
BO.1.A.3	in definition

15 SEPTEMBER

18:00 - 19:00
LCA Aperitif
 BO.2.A - FE.III.1

Organised by:



UNIVERSITÀ
 DEGLI STUDI
 DI MILANO

Chair: in definition

You will survive the talks, but now you deserve a drink. But before you raise that glass, a question: do you actually know where your Spritz has been? The prosecco grapes sweating under the Veneto sun, the Aperol traveling halfway across Italy, the ice cubes silently guzzling electricity, the plastic straw you grabbed without thinking — every sip has a story, and not all of it is pretty.

Welcome to the most delicious LCA case study ever attempted. Life Cycle Assessment (ISO 14040/44) is the tool engineers and scientists use to measure the true environmental cost of a product — from cradle to grave, or in this case, from vineyard to recycling bin. It is rigorous, it is quantitative, and — we promise — it can be genuinely fun when the functional unit is something you can drink.

In this informal evening session, we will walk you through the core concepts of LCA using a Spritz as our guinea pig: system boundaries, impact categories, carbon footprint, data gaps, and the uncomfortable truth that "natural" does not always mean "sustainable."

No slides you won't understand. No equations you didn't ask for. Just good science, honest numbers, and an aperitivo well deserved. Bring curiosity. We'll bring the Spritz.

BO.2.A.1
 FE.III.1.1

in definition

BO.2.A.2
 FE.III.1.2

in definition

BO.2.A.3
 FE.III.1.3

in definition

BO.2.A.4
 FE.III.1.4

in definition

19:15 - 20:15
 Theatre Performance
"Troppo Bella Per Essere Vera"
 BO.2.B

Sara è una scienziata brillante. Ma il suo passato da modella e indossatrice pesa come un macigno sulla sua carriera e la penalizza ingiustamente. Con la sua formidabile invenzione riuscirà finalmente a sconfiggere i pregiudizi? Tra ostacoli, diffidenze, assistenti pasticcioni e colpi di scena, un monologo che affronta con ironia un problema di grande attualità, non solo per il mondo della scienza: il pregiudizio.

Prendendo spunto da vicende realmente accadute, lo spettacolo mette a fuoco i meccanismi che ostacolano i percorsi femminili nel mondo scientifico e alimentano il pregiudizio, con l'ironia caratteristica della scrittura di **Massimiano Bucchi**. (sociologo e scrittore, già autore di testi teatrali per Laura Curino)

La regia è affidata a **Maura Pettoruso** che è avvezza alla messa in scena di spettacoli che mettono il contemporaneo e le sue vetuste criticità all'interno dei propri lavori. In scena, l'attrice **Maria Vittoria Barrella** darà corpo e voce a un monologo tagliente e disvelante.

16 SEPTEMBER

18:00 - 19:30
Scrosati ENEA Award - SEA
BO.3.A - WS.IV.6

19:00 - 20:00
Book Presentation by Marco Crescenzi
BO.3.B

Following the success of his award-winning debut book, *Più in alto degli dèi*, scientist and author **Marco Crescenzi** will announce his forthcoming second book at NanoInnovation, offering the audience an exclusive first glimpse of his new work. Further details will be revealed during the event.

17 SEPTEMBER

18:00 - 19:00
Book Presentation by Gianfranco Pacchioni
BO.4.A

Gianfranco Pacchioni, scientist and author of numerous books exploring research and its relationship with society, will present his works and engage with the audience on the major challenges facing contemporary science. A special opportunity to reflect on the present and future of innovation. Further programme details will be announced soon.

19:00 - 19:30
Yoga Lesson
BO.4.B

18 SEPTEMBER

18:00 - 19:00

*Music in the Cloister***Echoes of Cinema****Music and Memories from Timeless Stories**

BO.5.A

An evocative journey through some of cinema's most memorable melodies, where strings, piano and voice bring iconic stories and emotions beyond the screen. From intimate contemporary soundscapes to timeless songs and sweeping film scores, each piece invites the audience to relive the magic of cinema through live music.

CALEDONIA

Alessandro MINGRONE, *VIOLIN I*
 Irene DI DOMENICANTONIO, *VIOLIN II*
 Gianmarco PIEMARI, *VIOLA*
 Alice MICHAELLES, *PIANO*
 Carlotta SEGONI, *VOICE*

The programme brings together celebrated works that have become inseparable from iconic moments in cinema. Performed by strings, piano and voice, these pieces span different musical traditions while sharing the ability to evoke unforgettable stories and emotions through the memories they awaken.

Programme

The concert will celebrate renowned works from cinema and contemporary music.

- ◆ On the Nature of Daylight
Max Richter — featured in Hamnet
- ◆ The Way We Were
Marvin Hamlisch, Alan & Marilyn Bergman — from The Way We Were
- ◆ Por una Cabeza
Carlos Gardel — featured in Scent of a Woman
- ◆ Into the West
Howard Shore, Fran Walsh & Annie Lennox — from The Lord of the Rings: The Return of the King
- ◆ Symphonic Intermezzo from Cavalleria rusticana
Pietro Mascagni — featured in The Godfather Part III
- ◆ Come What May
David Baerwald & Kevin Gilbert — from Moulin Rouge!
- ★ Encore
To be revealed at the end of the performance

INTEGRATED APPROACH FOR PREVENTION THROUGH DESIGN IN NANOMATERIALS AND ADVANCED MATERIALS PRODUCTION PROCESSES

17 September

Co-organized with:



WORKSHOP COMMITTEE

Fabio BOCCUNI, INAIL

The INAIL research program promotes the safe and responsible development of nanotechnologies and new materials. The primary objective is to integrate safety and health principles from the very beginning of production, prioritizing the early elimination of risks in the design phase of new plants, processes, or products involving engineered nanomaterials (ENMs) and new and advanced materials (AdMa). The result is the identification and recommendation of safety and prevention measures to minimize workers' exposure and promote responsible nanotechnology-based innovation. The cooperation with IIT and production companies enhanced opportunities for exploitation of results. The workshop will address various aspects, including methodologies for risk assessment, exposure measurement and characterization of exposed workers, risk management, control strategies, and potential future developments and applications.

17 SEPTEMBER

14:00 - 15:30		WS.I.1
Integrated approach for prevention through design in nanomaterials and advanced materials production processes		
Chairs: Fabio BOCCUNI, INAIL & Stefania SABELLA, IIT		
1	Stefania SABELLA, IIT & HIAS-UCAS University, Zhejiang, P.R. China Introduction on the INAIL-IIT research framework "Nanokey"	
2	Fabio BOCCUNI, INAIL Prevention-through-design for nanomaterials and advanced materials production processes	
3	Riccardo FERRANTE, INAIL Critical issues for measuring workers exposure to nanomaterials by multiparametric approach	
4	Francesca TOMBOLINI, INAIL Workplace exposure scenarios characterization of 2-D airborne materials	
5	in definition, BeDimensional Spa New approaches for 2-D nanomaterials exposure quantification by integrating RAMAN and SEM techniques	
6	Claudio NATALE and Saverio CAPORALINI, IIT From exposure to risk prevention: an integrated, data-driven approach to testing and assessing occupational risks of inhaled nanomaterials	

ADVANCED APPROACHES FOR NANOMATERIAL CHARACTERIZATION, SAFETY AND BIOMEDICAL APPLICATIONS

16 September

Co-organized with:



WORKSHOP COMMITTEE

Francesco CUBADDA, *Istituto Superiore di Sanità*
 Valentina TIRELLI, *Istituto Superiore di Sanità*
 Beatrice BOCCA, *Istituto Superiore di Sanità*
 Annarica CALCABRINI, *Istituto Superiore di Sanità*

16 SEPTEMBER

09:00 - 10:30		WS.II.1
NAMs4NANO: unlocking the potential of NAMs in supporting the risk assessment of nanomaterials		
Chairs: Francesco CUBADDA & Andrea HAASE, <i>BfR</i>		
1	Maria Chiara ASTUTO, <i>EFSA</i> The perspective of the European Food Safety Authority on NAMs in relation to food/feed nano-specific risk assessments	
2	Andrea HAASE, <i>BfR</i> A qualification system to accelerate development and regulatory implementation of NAMs	
3	Francesco CUBADDA, <i>ISS</i> The NAMs4NANO case studies: a broad NAM catalogue to address risk assessment challenges of real-world materials	
4	Francesca FERRARIS, <i>ISS</i> The physicochemical characterization and analytical platform underpinning NAMs4NANO	

11:30 - 13:00

WS.II.2

Exploring the Nanoscale: Flow Cytometry Methods and Applications for Nanoparticle Characterization

Chairs: Valentina TIRELLI & Franco CARDONE, ISS

1	Claudia Maria RADU, <i>University of Padua</i> Innovative Approaches to Nanoparticle Identification and Characterization by Flow Cytometry
2	Stefano AMALFITANO, <i>Water Research Institute, IRSA-CNR</i> Flow cytometry for the analysis of micro/nanoparticles: current applications and environmental challenges
3	Fabrizio MATTEI, <i>ISS</i> Immune-Derived Extracellular Vesicles for cancer therapy
4	Aurelia RUGHETTI, <i>Sapienza University of Rome</i> EVS in tumor-immunity cross talk: exploring mechanisms and exploiting biomarkers

14:00 - 15:30

WS.II.3

Micro- and nanoplastics: advancing knowledge from detection to mitigation

Chairs: Cristina ANDREOLI & Beatrice BOCCA, ISS

1	Giovanni LIBRALATO, <i>University of Naples Federico II</i> Micro- and Nanoplastics: ecotoxicological threats from ecosystems to human health
2	Milica VELIMIROVIC FANFANI, <i>Flemish Institute for Technological Research</i> Advanced analytical strategies for reliable exposure assessment of micro- and nanoplastics
3	Veruscka LESO, <i>University of Naples Federico II</i> Biomarkers of exposure and early biological responses to micro- and nanoplastics
4	Mariacristina COCCA, <i>Italian National Research Council</i> Micro- and Nanoplastics: Advancing Knowledge from Detection to Mitigation

16:00 - 17:30

WS.II.4

New drug delivery systems for biomedical applications

Chairs: Giuseppina BOZZUTO & Marisa COLONE, ISS

1	Annarita BILLA, <i>Department of Chemistry Ugo Schiff, University of Florence</i> Nanovectors: a smart approach to increase solubility, bioavailability and stability of drugs
2	Donato NICHIL, <i>Sapienza University of Rome</i> Preparation and characterization of polydatin-chitosan nanocapsules for enhanced drug delivery efficacy
3	Sofia MIGANI, <i>ISS and University of Camerino</i> Synthesis, structural studies and biological evaluation of copper(I) and copper(II) complexes supported by bis(pyrazol-1-yl)acetate ligand functionalized with amantadine for the treatment of glioblastoma
4	Miriam CAVIGLIA, <i>ISS and University of Camerino</i> Nanoparticle-assisted drug delivery of copper complexes as potential anticancer agents

FROM LOW TO HIGH TRL: TECHNOLOGICAL CHALLENGES AND SYSTEM EVOLUTION ACROSS RESEARCH AND INDUSTRY

16 - 17 September

Co-organized with:



**Politecnico
di Torino**

WORKSHOP COMMITTEE

Marzia QUAGLIO, *Polytechnic University of Turin*
Giulia MASSAGLIA, *Polytechnic University of Turin*
Veronica VIGHETTO, *Polytechnic University of Turin*
Valentina BERTANA, *Polytechnic University of Turin*
Mara SERRAPEDE, *Polytechnic University of Turin*

This two-day workshop will explore the revolutionary role of technological challenges and system evolution, mandatory to connect the worlds of research and industry, which until now have been very distant.

The transition from low to high Technology Readiness Levels (TRLs) represents one of the most critical and complex phases in the lifecycle of technological innovation. While early-stage research (TRL 1–3) is typically driven by scientific exploration and proof-of-concept validation, the progression toward industrial deployment (TRL 7–9) requires profound transformations in system architecture, design methodology, validation protocols, and stakeholder engagement. This workshop aims to promote a multidisciplinary dialogue on the technical, systemic, and organizational challenges that emerge during this transition, with particular focus on the fields of energy systems, electronics, sensing technologies, and biomedical applications.

The transition from laboratory prototypes to scalable, market-ready solutions requires much more than incremental technical refinement. Design choices that are acceptable in early experiment stages often prove inadequate when confronted with integration constraints, manufacturability requirements, cost optimization, safety standards and regulatory compliance. Furthermore, system-level considerations, including interoperability, reliability in real operating conditions, life cycle assessments, and sustainability, often reshape the original technological vision. The workshop will therefore examine how technological artefacts evolve not only in terms of performance metrics, but also in terms of architecture, materials, validation strategies, and risk management approaches. A key focus will be on challenges related to scalability and system integration technologies. Those who demonstrate promising capabilities on a small scale may encounter unexpected limitations when integrated into complex infrastructures or subjected to industrial manufacturing processes. Through a comparison of different sectors, the workshop will seek to identify recurring patterns of bottlenecks and systemic constraints that characterize TRL-progression across all sectors. Another key aspect concerns regulatory and standardization frameworks. As technologies approach higher levels of technological maturity, compliance with safety standards, certification procedures and quality management systems become a central factor in design evolution. Understanding how regulatory pathways interact with innovation timelines is essential to avoid delays, redesign cycles, or misalignments between research outcomes and industrial expectations.

The workshop will encourage discussion on strategies to integrate regulatory foresight and system-level thinking from the early stages of research.

Ultimately, the workshop aims to contribute to a more structured understanding of how innovation in research can be effectively aligned with the requirements of real systems and the needs of society. By promoting knowledge exchange between different sectors and systemic awareness, the initiative aspires to accelerate the path from scientific discovery to robust, reliable and high-impact technological diffusion.

16 SEPTEMBER

09:00 - 10:30		WS.III.1
Nanotechnology for energy and packaging		
Chair: Valentina BERTANA, <i>Polytechnic University of Turin</i>		
1	Gianluca DI PROFIO, <i>CNR-ITM</i> Composite hybrid membranes with smart and self-cleaning capability for desalination and bioseparations	
2	Matteo VERDI, <i>Kirana srl</i> Development of femtosecond laser micromachining processes for industrial applications	
3	Anil KUMAR, <i>Malven Panalytical</i> X-ray absorption spectroscopy applications on a versatile laboratory X-ray diffractometer	
4	Mariangela GIOANNINI, <i>Polytechnic University of Turin</i> Modelling strategies for Industrial Silicon Photonics: bridging commercial design suites and custom physical models	

11:30 - 13:00		WS.III.2
Smart technologies for Advanced Healthcare: From Functional Materials to 3D in vitro Models		
Chair: Veronica VIGHETTO, <i>Polytechnic University of Turin</i>		
1	Paolo ARIANO, <i>D³4H</i> Beyond the Prototype From Scientific Result to Scalable Healthcare Technology	
2	Valentina PREZIOSI, <i>University of Naples Federico II</i> Title in definition	
3	Emanuele GIORDANO, <i>Università degli Studi di Bologna</i> Communicating realistic expectations, embracing biological complexity, and fostering integrated approaches to advance clinical relevance of Tissue Engineering	
4	Bruno HERNAEZ, <i>Consejo Superior de Investigaciones Científicas (CSIC)</i> Using 3D Skin Models to Study Monkeypox Virus Infection	

16 SEPTEMBER

14:00 - 15:30		WS.III.3
From Innovation to Research Valorization: Methods, Tools and Protection of Research Results		
Chair: Francesco Matteucci, <i>Fondazione Bruno Kessler (FBK)</i>		
1	Roberto GIANNANTONIO, <i>Nanoshuttle</i> Bayesian Entrepreneurship	
2	Francesco MATTEUCCI, <i>Fondazione Bruno Kessler (FBK)</i> Accelerating Deep Tech Innovation: The Role of Research Valorization and Ambidextrous Strategies	
3	Matteo CEVESE, <i>HIT - Hub Innovazione Trentino</i> Assessing and monitoring innovation journeys: the KTH IRL model in a Proof of Concept programme	
4	ROUND TABLE Chiara FURLAN, <i>Ufficio Brevetti Polytechnic University of Turin</i>	

16:00 - 17:30		WS.III.4
From Research to Enterprise: Industry Collaboration, Spin-Offs and Venture Capital		
Chair: Francesco MATTEUCCI, <i>Fondazione Bruno Kessler (FBK)</i>		
1	Luigi MESCHINI, <i>Venture Path</i> Title in definition	
2	Domenico NESCI, <i>Deep Ocean Capital Sgr</i> From Research to Enterprise: Industry Collaboration, Spin-Offs and Venture Capital	
3	Luigi BADALONI Title in definition	
4	ROUND TABLE Francesco MATTEUCCI, <i>Fondazione Bruno Kessler (FBK)</i>	

17 SEPTEMBER

09:00 - 10:30		WS.III.5
Enabling factors of Nanotech scale-up		
Chair: Roberto GIANNANTONIO, NANOSHUTTLE srl		
1	Roberto GIANNANTONIO, <i>Nanoshuttle</i> Semantics of «Enablement» in the Frame of Innovation	
2	Fabrizio PIRRI, <i>Polytechnic University of Turin</i> Scaling Nanotech: The Role of Technological Infrastructure in Deep Tech Innovation	
3	Vittorio MORANDI, <i>ISMN - CNR</i> Title in definition	
4	Marco MAURIZI Title in definition	

11:30 - 13:00		WS.III.6
Best practice of nanotech scale up		
Chair: Andrea CAPASSO, <i>International Iberian Nanotechnology Laboratory</i>		
1	Richard HALL-WILTON, <i>Fondazione Bruno Kessler (FBK)</i> The Role of A Research Technology Organisation in Scaling Nanotech: examples from Fondazione Bruno Kessler's Clean Room Upgrade	
2	in definition	
3	Andrea AUGERI, <i>Suprema Tape</i> Title in definition	
4	Paolo BONDAVALLI, <i>EISMEA - European Innovation Council</i> Title in definition	

17 SEPTEMBER

14:00 - 15:30		WS.III.7
From Low to High TRL: Technological Challenges and System Evolution Across Research and Industry - Round Table		
Chair and moderator: Francesco MATTEUCCI, FBK		
1	Alexandre CECCALDI (Remote), ETPN Title in definition	
2	Bernardino D'AURIA Title in definition	
3	Nicola MIROTTA, CNR Title in definition	

16:00 - 17:30		WS.III.8
From Research to Startup: Bridging Innovation and Entrepreneurship		
Chair: Mara SERRAPEDE, Polytechnic University of Turin		
1	Introductory Keynote Pietro ZACCAGNINI, Polytechnic University of Turin In definition	
2	Luisa BAUDINO, Polytechnic University of Turin Graphene Oxide-based membranes for energy and raw materials recovery applications: a scalable journey	
3	Giacomo SPISNI, Polytechnic University of Turin & IIT Founding your next deep tech startup: tips and tricks from a work-in-progress	
4	Simona VILLATA, Polytechnic University of Turin In definition	

TECHNOLOGIES FOR ENERGY TRANSITION

16 - 17 - 18 September

Co-organized with:



WORKSHOP COMMITTEE

Margherita MORENO, ENEA
Raffaele LIBERATORE, ENEA
Martina CALIANO, ENEA
Maria Luisa GRILLI, ENEA
Nicola LISI, ENEA
Umberto Pasqual LAVERDURA, ENEA
Daniele Mirabile GATTIA, ENEA
Marco FORTUNATO, ENEA

The progressive deterioration of environmental conditions at both local and global scales is largely driven by anthropogenic activities, with greenhouse gas emissions—particularly CO₂—representing a major contributor to climate change. The energy sector, encompassing both production and consumption, remains a key source of these emissions, and the continuous growth in global energy demand further exacerbates the challenge.

The transition toward low-carbon and sustainable energy systems is therefore imperative. This transition requires not only the development of high-performance technologies, but also their economic viability, scalability, and integration within existing infrastructures. In this framework, advanced energy solutions—ranging from nuclear fusion and artificial photosynthesis to next-generation electrochemical systems—are being intensively investigated, often leveraging insights from natural processes.

Recent progress in nanostructured materials, functional interfaces, and multiscale computational modelling is enabling significant improvements in energy conversion, storage, and transport processes. Nevertheless, critical challenges remain, including the limited transferability of laboratory-scale results to industrial applications (the so-called “valley of death”) and the need for cost-effective manufacturing routes.

Furthermore, the intrinsic intermittency of renewable energy sources, such as solar and wind, imposes stringent requirements on the development of efficient, flexible, and scalable energy storage technologies. Solutions spanning multiple temporal and spatial scales—ranging from electrochemical and thermochemical storage to hydrogen-based systems—are essential to ensure grid stability and reliability.

This workshop is framed within ENEA’s activities in the context of the “Ricerca di Sistema Elettrico” programmes, funded by the Italian Ministry of the Environment and Energy Security (MASE) and managed by CSEA. It aims to provide a multidisciplinary forum to present and discuss recent advances in energy technologies for the transition. Particular emphasis will be placed on advanced materials and processes for energy storage, hydrogen production and utilization, modelling-driven design, and the integration of renewable energy sources into resilient and sustainable energy systems.

The activity is funded by the Program Agreements between ENEA and the Italian Ministry of the Environment and Energy Security (MASE), Project 1.2 “Technologies for electrochemical and thermal storage” (PTR 2025-2027, CUP I53C24003300001); Project 2.3 “Evoluzione e pianificazione delle reti elettriche” (PTR 2025-2027, CUP I53C24003310001); Project 1.6 “Efficienza energetica dei prodotti e dei processi industriali” (PTR 2025-2027, CUP I53C24003340001) Project 1.4 “Frontier materials and devices for energy applications” (PTR 2025-2027, CUP I53C24003320001).

16 SEPTEMBER

09:00 - 10:30		WS.IV.1
Electrochemical Energy Storage: Strategic Perspectives and the Battery Value Chain		
Chair: Mariasole DI CARLI, ENEA		
1	Margherita MORENO, ENEA The European Battery Ecosystem: Current Landscape and Future Perspectives	
2	Alessandra DI BLASI, CNR-ITAE Energy Storage Innovation in Italy: From Conventional Batteries to Next-Generation Technologies through the Ricerca di Sistema Programme	
3	Omar PEREGO, RSE Strategic Drivers for Battery Development: measures to mitigate critical raw material supply risks	
4	Grazia ACCARDO, Leonardo Batteries in Aerospace, Defense and Space	
10:50 - 11:30		WS.IV.2
Chair: in definition		
Gian Carlo TRONZANO, COMAU The Power of Automation		
11:30 - 13:00		WS.IV.3
Advanced Materials for Sodium-Ion Batteries: From Industrial Perspectives to Electrode Design		
Chair: Claudia PAOLETTI, ENEA		
1	Mark COPLEY, FAAM Industrial Perspectives on Sodium-Ion Batteries: Opportunities, Challenges and Market Drivers	
2	Andrea GRILLO, University of Naples Federico II Low-CRM Layered Cathode Materials for Sodium-Ion Batteries	
3	Concetta BUSACCA, CNR-ITAE Electrospun Self-Standing Cathodes for Sodium-Ion Batteries	
4	Marco AMBROSETTI, RSE Anode Materials for Sodium-Ion Batteries: From Hard Carbon to MXenes	
5	Luca MESINA, Sapienza University of Rome Zeolite - Templated Hard Carbons as an Anode Material for Sodium-Ion Batteries	

16 SEPTEMBER

14:00 - 15:30		WS.IV.4
Advanced Battery Components: Manufacturing and Functional Materials		
Chair: Annalisa AURORA, ENEA		
1	Maria MONTANINO, ENEA The Role of Materials Interactions in multicomponent Ink Formulation for Gravure Printed high energy Cathodes	
2	Andrea GENTILE, Université di Montpellier Role of Salts in DME-based Electrolytes on First Lithium Formation and Interface Stability within zero-excess battery configuration	
3	Myriam D'ALU', Sapienza University of Rome Innovative approaches for reusing valuable materials derived from the recovery of used batteries: from material to system	
4	Sara BERGAMASCO, Nanofaber Electrospun Polymeric Separators: Sustainable Alternatives for Next-Generation Batteries	
5	Eleonora DE SANTIS, Sapienza University of Rome Low-Temperature Lithium Batteries: The Role of Ionic Liquid Electrolytes in Enhancing Electrochemical Performance	
16:00 - 17:30		WS.IV.5
Battery Systems: Testing, Validation and Advanced Applications		
Chair: Francesco VITIELLO, ENEA		
1	Francesco SERRAO, Motus-e The Role of Batteries in the Energy Transition: Current Challenges and Future Perspectives	
2	Natascia ANDRENACCI, ENEA Predictive Algorithms for Battery Diagnostics	
3	Giosuè GIACOPPO, CNR-ITAE Hybrid Redox Flow/Lithium-Ion Energy Storage Systems: Benefits and Open Challenges	
4	Silvia COLNAGO, RSE Advanced Diagnostics and Suitability Assessment of Second-Life Battery Modules for Stationary Applications	
18:00 - 19:30		WS.IV.6
Second edition of the award in honour of Bruno Scrosati		
Chair: in definition		
1	in definition	

17 SEPTEMBER

09:00 - 10:30		WS.IV.7
Innovative materials for electrochemical applications		
Chair: Margherita MORENO, ENEA		
1	Introductory Keynote Giovanni Battista APPETECCHI, ENEA Title in definition	
2	Alyssa MANCINI, Sapienza University of Rome Understanding Structural and Electrochemical Degradation in Li-Rich Cathodes	
3	Daniele STELLATI, ENEA Bi-reforming of methane powered by Induction heating on 3D additively manufactured gamma-alumina monoliths	
4	Cheikh Reda BERNAOUI, Sapienza University of Rome A Metal-Free PEO-LiNO₃ Interlayer for Uniform Lithium Deposition on Bare Copper Current Collectors in Anode-Less Lithium-Metal Batterie	

10:50 - 11:30		WS.IV.8
Chair: in definition		
Lorenzo ORSINI, ALKEEMIA Title in definition		

11:30 - 13:00		WS.IV.9
Climate-Resilient Smart Grids: Research and Innovation for the Evolution and Planning of Electrical Networks		
Chair: Martina CALIANO, ENEA		
1	Lisa CORAZZA, University of Padua & Lorenzo VITULANO, RSE Perspective Analysis of the Italian Transmission System in the Presence of Large-Scale HVDC Deployment	
2	Alessandro VERONI, RSE Advanced AC/DC converter control structures for the stability of MV distribution systems: detailed modelling and EMT simulation	
3	Salvatore FABOZZI & Amedeo BUONANNO, ENEA Building Energy Demand for Smart Grids: Short and Long-Term Perspectives	
4	Valerio MARIANI, ENEA Social-aware optimization models for the operation of multi-sector energy aggregates	

17 SEPTEMBER

14:00 - 15:30		WS.IV.10
Thermal Energy Storage: main research activities at medium temperature		
Chair: Elisabetta Maria VECA, ENEA		
1	Raffaele LIBERATORE, ENEA Current research trends and perspectives on Thermal Energy Storage	
2	Enrico PATRUCCO, RSE Design and sizing of a demonstration plant for the analysis of the summer solar desorption process in an open-cycle thermochemical seasonal storage system	
3	Daniele NICOLINI, ENEA Study of an Electro-Thermal Energy Storage system using cement-based material with dissipative (conductive/resistive) properties	
4	Raffaele LIBERATORE, ENEA Energy characterization of cascaded sensible and latent medium-temperature thermal energy storage material modules	

16:00 - 17:30		WS.IV.11
Thermal Energy Storage: main research activities at high temperature for industrial objectives		
Chair: Raffaele LIBERATORE, ENEA		
1	Claudia VENDITTI, Sapienza University of Rome Computational analysis of an air-based thermal energy storage system using medium-to-high temperature PCMs	
2	Matteo BATTAGLIA, Tor Vergata University of Rome Mixed oxides for thermochemical energy storage: study, characterization, and performance comparison	
3	Annarita SPADONI, ENEA Reactive Fluidized bed reactors for high-temperature thermochemical energy storage	
4	Maria Anna MURMURA, Sapienza University of Rome Study of an open loop thermochemical energy storage system based on the CaO/CaCO₃ reactive couple	

18 SEPTEMBER

09:00 - 10:30

WS.IV.12

Frontier material and devices for energy application 1/2

Chair: in definition

1	Mirko ROCCI, <i>Thales Alenia Space</i> High-Performance Polymer Composites with 2D Fillers for Thermal Management in Space Energy Systems
2	Marco FORTUNATO, <i>ENEA</i> DLP-printed h-BN/graphite polymer composites for thermal management: processing, functional properties and non-destructive characterization
3	Filippo AGRESTI, <i>CNR</i> Thermodynamic, kinetic and structural characterization of Thermochemical Materials for Thermal Storage
4	Pierangela CRISTIANI, <i>RSE</i> Can microbial corrosion affect innovative materials for renewable energy production?
5	Carmelatina PRONTERA, <i>ENEA</i> Exploring Different LDH Synthesis Approaches toward the Development of Bifunctional Materials for ICCU Applications

10:50 - 11:30

WS.IV.13

Chair: in definition

Laura MICHELI, *University Tor Vergata of Rome*
Title in definition

11:30 - 13:00

WS.IV.14

Frontier material and devices for energy application 2/2

Chair: Marco FORTUNATO, *ENEA*

1	Enrica FONTANANOVA, <i>CNR</i> Polymerizable ionic liquids as building block of advanced ion-conductive membranes
2	Elisa MERCADELLI, <i>CNR</i> Manufacturing Strategies for All-Ceramic Membranes for Hydrogen Separation
3	Barbara PALAZZO, <i>ENEA</i> Hybrid Textile Architectures and Functionalization Strategies for Sustainable Wind Energy Composites
4	Francesca MAZZANTI, <i>ENEA</i> 3D-Printed TPMS Ceramic Heat Exchangers for Enhanced Thermal Recovery in Energy Production Systems
5	Francesco PINI, <i>RSE</i> High-Entropy Alloys Processed by Ball Milling and Spark Plasma Sintering
6	Daniele MIRABILE GATTIA, <i>ENEA</i> Additive Manufacturing of a Ferritic Alloy: heat exchange applications

18 SEPTEMBER

14:00 - 15:30		WS.IV.15
Carbon Dioxide Removal and CCUS: Towards Integrated Carbon Management 1/2		
Chair: Nicola LISI and Silvano DEL GOBBO, ENEA		
1	Marialuisa GRILLI & Umberto PASQUAL LAVERDURA, ENEA Indroduction	
2	Stefano STENDARDO, SNAM CCUS Sandbox – derisking innovative carbon management technologies	
3	Stefania MOIOLI, Politecnico di Milano A feasibility study of application of BECCS to a WtE plant in Italy	
4	Andrea DI CARLO, Università dell'Aquila Design, Development, and Experimental Validation of a Biomass and Plastic Waste Gasification System Integrated with CO₂ Capture and Utilization (CCU)	
5	Michela ALFE', CNR-STEM Upcycling Carbon-rich waste into advanced CO₂ capture adsorbents	
6	Daniele FERRARIO, Politecnico di Milano Title in definition	

16:00 - 17:30		WS.IV.16
Carbon Dioxide Removal and CCUS: Towards Integrated Carbon Management 2/2		
Chair: Nicola LISI and Silvano DEL GOBBO, ENEA		
1	Nicola LISI, Silvano DEL GOBBO, ENEA Introduction	
2	Virginia SIGNORINI, Università di Bologna From CO₂ Separation to Transport: Polymeric Membranes and the role of non-metallic component in high-pressure CO₂	
3	Eugenio MELONI, Università di Salerno Electrically assisted POCS-catalytic reactor with integrated dense Pd-Ag membrane for low-carbon hydrogen production via dry reforming of methane	
4	Benedetta DE CAPRARIIS, Università La Sapienza Use of solid sorbents for HCl and H₂S removal from syngas at ambient and elevated pressures	
5	Alessio VAROTTO, ENEA PGM-free and PGM based nanocatalysts for CO₂ valorization	

NEXT-GENERATION FUNCTIONAL SEMICONDUCTORS FOR ENERGY AND ELECTRONICS: FROM PEROVSKITES TO ORGANIC DEVICES

16 - 17 September

Co-organized with:



WORKSHOP COMMITTEE

Massimo BERSANI, *FBK*

Mahmut KUŞ, *Konya Technical University*

This workshop focuses on recent advances in next-generation semiconductor technologies, spanning hybrid, organic, and perovskite-based systems for energy and electronic applications. Rapid progress in materials design, interface engineering, and scalable fabrication has enabled significant improvements in device performance, stability, and manufacturability.

The session aims to bring together researchers working on perovskite solar cells, organic field-effect transistors (OFETs), organic light-emitting diodes (OLEDs), and hybrid semiconductor platforms. Particular emphasis will be placed on functional materials, interfacial engineering strategies, defect passivation approaches, and novel architectures that enhance efficiency, operational stability, and large-area scalability.

Topics of interest include, but are not limited to:

- Advanced functional materials (e.g., polymers, 2D materials, clays, polyoxometalates)
- Interface engineering and charge transport layers
- stability enhancement and degradation mechanisms
- Scalable and printable semiconductor technologies
- Emerging device architectures (flexible, wearable, large-area systems)
- AI-assisted materials discovery and device optimization
- Sustainable and environmentally friendly semiconductor approaches

This workshop aims to foster interdisciplinary collaboration and provide insights into bridging the gap between laboratory-scale innovation and industrial-scale implementation.

16 SEPTEMBER

14:00 - 15:30		WS.V.1
NanoEthics: Geopolitics and ethics of Nanotechnologies		
Chairs: Sara HEJAZI & Massimo BERSANI, FBK		
1	Massimo BERSANI, FBK Nanotechnology and Global Sustainability. From Technological Promise to Safe and Sustainable Innovation	
2	Richard HALL-WILTON, FBK The dichotomy of simultaneous globalisation and localisation of nanotechnology	
3	Mahmut KUS, Konya Technical University Nanoethics in Advanced Sensor Technologies	
4	Sara HEJAZI, FBK Geopolitics at the Nanoscale: How Geography and Culture Shape Iran's Tech Trajectory	
5	Manuel DELAFLOR, FBK Title in definition	
6	Niccolò MONTI, FBK Who Acts at the Nanoscale? On the Governance of Sub-Visible Technologies	

17 SEPTEMBER

09:00 - 10:30		WS.V.2
Next-Generation Functional Semiconductors for Energy and Electronics: From Perovskites to Organic Devices 1/3		
Chair: Imren HATAY PATIR, Selçuk University		
1	Mujeeb U. CHAUDHRY, Durham University Towards Electrically Pumped Organic Lasers	
2	Mustafa KARAMAN, Eskisehir Technical University Superomniphobic Organic/Inorganic Nanocomposite Coatings via Hybrid CVD for Next-Generation Electronic Interfaces	
3	Çisem KIRBIYIK KURUKAVAK, Konya Technical University Density Functional Theory-Guided Design of Boronic Acid-Based Self-Assembled Monolayers for ITO Modification in Organic Solar Cells	
4	Esmâ YENEL DEMİR, Konya Technical University Interfacial Engineering via Carbazole-Based Self-Assembled Monolayers (CbzNaph) for Efficient and Stable Inverted Perovskite Solar Cells	
5	Tuğbahan YILMAZ, Konya Technical University Concentration-Dependent Effects of 4-Fluorophenylboronic Acid on P3HT:PCBM Organic Solar Cells	

17 SEPTEMBER

11:30 - 13:00

WS.V.3

Next-Generation Functional Semiconductors for Energy and Electronics: From Perovskites to Organic Devices 2/3

Chair: Imren HATAY PATIR, *Selçuk University*

1	Burak GULTEKIN, <i>Ege University</i> Eco-Friendly Supercapacitors based on Natural Biopolymer-Derived Electrodes and Gel Polymer Electrolytes
2	Kurtuluş YILMAZ, <i>Konya Technical University</i> Thin Film Coating of Poly(acrylic acid- vinylbenzyl chloride) as a Prime Layer for the Enhancement of Conductivity and Uniformity of PEDOT Synthesized by Vapor Phase Polymerization
3	Abdullah ZEYBEK, <i>Konya Technical University</i> Self-Standing Superhydrophobic Thin Films Using Soft Lithography and Initiated Chemical Vapor Deposition (iCVD) Techniques
4	Metin DINMEZ, <i>Konya Technical University</i> Fabrication and Characterization of Hydrophobic SiO_x Nanoparticle Surfaces Using Plasma-Enhanced Chemical Vapor Deposition (PECVD)

14:00 - 15:30

WS.V.4

Next-Generation Functional Semiconductors for Energy and Electronics: From Perovskites to Organic Devices 3/3

Chair: Mujeeb U. CHAUDRHY, *Durham University*

1	İmren HATAY PATIR, <i>Selçuk University</i> Photocatalytic Hydrogen Production: Recent Advances and Opportunities in Heterojunction Photocatalysts
2	Emre ASLAN, <i>Selçuk University</i> Clay-Based Interfacial Bond Engineering: Clays as Charge-Transfer Mediators for Photo/Piezocatalytic Hydrogen Production
3	Yiğit OSMAN AKYILDIZ, <i>Selçuk University</i> Electrodeposited High-Entropy Alloy/CNT Electrocatalyst for Enhanced Hydrogen Evolution Reaction
4	Şevval YILDIZ, <i>Selçuk University</i> Rational Design and Preparation of S-Scheme Heterojunction Photocatalysts for Photocatalytic Hydrogen Production
5	Talha KURU, <i>Selçuk University</i> In Situ Piezodeposited Noble-Metal Schottky Junctions on Laponite/ZnO for Enhanced Piezocatalytic Hydrogen Evolution
6	Zeki TARIK UNLU, <i>Selçuk University</i> Photocatalytic hydrogen evolution by Smectite-based clay composite catalyst

ADVANCED IONIZING RADIATION TECHNOLOGIES FOR LIFE SCIENCES, MATERIALS ENGINEERING, AND SPACE EXPLORATION

17 September

Co-organized with:



WORKSHOP COMMITTEE:

Rocco CARCIONE, *ENEA*
Alessia CEMMI, *ENEA*
Jessica SCIFO, *ENEA*

This mini-workshop focuses on recent advances in ionizing radiation technologies, encompassing gamma rays, X-rays, electron beams, and protons, for multidisciplinary applications across materials science, life sciences, and space exploration. The aim is to bring together researchers, engineers, and practitioners working across radiation physics, cultural heritage, aerospace engineering, and healthcare.

Particular emphasis will be placed on progresses in radiation processing, facility capabilities, routes for radiation-induced material functionalization, innovative preservation strategies for cultural heritage and agri-food, radiation tolerance, planetary exploration, radiation therapies and dosimetry.

Topics of interest include, but are not limited to:

- Irradiation facilities (gamma, electron beam, proton, neutron)
- High-energy/nuclear applications
- Radiation-induced material synthesis, functionalization, and defect engineering
- Non-destructive preservation and biodeterioration control for cultural heritage and agri-food
- Astrobiology and radiation shielding materials for space applications
- Advanced radiation therapies and dosimetric systems

Organized into two 90-minute sessions, this mini-workshop aims to foster interdisciplinary collaboration and provide insights into bridging the gap between fundamental radiation physics and high-impact industrial, aerospace, and clinical applications.

17 SEPTEMBER

14:00 - 15:30		WS.VI.1
Irradiation Facilities, High-Energy Physics, and Nuclear Applications		
Chair: Jessica SCIFO, ENEA		
1	Andrea COLANGELI, ENEA The Frascati Neutron Generator (FNG): an advanced radiation facility for nuclear fusion technology, material research and space applications	
2	Giulia BAZZANO, ENEA From Proton Beams to Space Radiation: TOP-IMPLART as a Bridge between Medicine, Technology and Space	
3	Beatrice D'ORSI, ENEA ENEA Distributed Irradiation Facility Network for Space Applications: An Integrated Platform for Multi-Radiation Testing and Qualification	
4	Adriano VERNA, ENEA Radiation Hardness Qualification of Scintillators for High-Energy Physics	
5	Valentina PINTO, ENEA Radiation Hardness of High-Temperature Superconducting Materials at Fusion Relevant Conditions	

16:00 - 17:30		WS.VI.2
Advanced ionizing radiation technologies for life, material sciences, and space exploration 2/2		
Chair: Rocco CARCIONE, ENEA		
1	Emiliana MANSI, ENEA Gamma irradiation as a safe decontamination tool for Cultural Heritage materials	
2	Chiara Elvira MAINARDI, ENEA Gamma irradiation along the agri-food chain: from crop protection to food preservation	
3	Silvia BATTISTONI, ENEA 3D Polyethylene Glycol Diacrylate-Polyaniline Composites by ionizing radiation: An Innovative (and unexplored) technologic route for materials modification	
4	Carmen DEL FRANCO, ENEA Insights from the CRYPTOMARS project: Biological responses of Antarctic cryptoendolithic communities to ionizing and non-ionizing radiation	
5	Ilaria DE STEFANO, ENEA Multi-omics profiling reveals dose-dependent signatures of radiation-induced medulloblastoma in Ptch1 +/- mice	

TITLE IN DEFINITION*17 September**Co-organized with:***WORKSHOP COMMITTEE***in definition***17 SEPTEMBER**

10:50 - 11:30	WS.VII.1
Chair: in definition	
in definition	

17 SEPTEMBER

11:30 - 13:00		WS.VII.2
Title in definition		
Chair: in definition		
1	in definition	
2	in definition	
3	in definition	
4	in definition	
5	in definition	

14:00 - 15:30		WS.VII.3
Title in definition		
Chair: in definition		
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4	in definition	
5	in definition	

CARBON CAPTURE, UTILISATION AND STORAGE: OPPORTUNITIES, CHALLENGES AND PATHWAYS TO NET ZERO

17 September

Co-organized with:



WORKSHOP COMMITTEE

Michela ALFE, CNR-STEMS

Valentina GARGIULO, CNR-STEMS

Achieving Europe's climate neutrality targets requires not only a rapid expansion of renewable energy and improvements in energy efficiency, but also effective solutions for reducing emissions from hard-to-abate sectors. In this context, Carbon Capture, Utilisation and Storage (CCUS) technologies are increasingly recognised as essential tools for decarbonisation, enabling the capture of CO₂ emissions at source, their transport and permanent geological storage, or their conversion into valuable products and materials.

The workshop will explore the current state and future prospects of CCUS technologies, highlighting their role in supporting the European Green Deal and the EU's 2050 climate objectives.

The event aims to move beyond the theoretical discussion of carbon management and showcase concrete actions, infrastructures, and collaborations that are driving innovation and deployment across Europe.

17 SEPTEMBER

14:00 - 15:30		WS.VIII.1
CCUS in Action: The ECCSEL ERIC Italian Nodes Contribution		
Chairs: Michela ALFE & Valentina GARGIULO, CNR-STEMS		
1	in definition	
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16:00 - 17:30		WS.VIII.2
Scientific and Technological Advances in Carbon Capture, Utilisation and Storage		
Chairs: Michela ALFE & Valentina GARGIULO, CNR-STEMS		
1	in definition	
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CIRCULAR ASPHALT: SCIENCE, SUSTAINABILITY, INNOVATION

18 September

Co-organized with:



WORKSHOP COMMITTEE

Michela ALFE, *CNR-STEMS*
Valentina GARGIULO, *CNR-STEMS*
Pietro CALANDRA, *CNR-ISMN*
Cesare OLIVIERO ROSSI, *University of Calabria*

Addressing environmental challenges requires innovative approaches that connect fundamental science with practical applications in sustainable development.

The workshop will highlight the role of advanced material characterization and rheological analysis in developing more sustainable asphalt technologies and will discuss the broader implications of integrating waste valorization strategies into road construction and maintenance practices.

Bringing together expertise from chemistry, physics, and engineering, the workshop demonstrates how waste valorization can contribute to the production of valuable resources suited for extending pavement service life, improving road safety, reducing maintenance needs, and decreasing the amount of waste sent to landfills.

18 SEPTEMBER

09:00 - 10:30		WS.IX.1
From Waste to Roads: the RESCA Project Circular Solutions for Sustainable Asphalt		
Chairs: Valentina GARGIULO, <i>CNR-STEMS</i> & Pietro CALANDRA, <i>CNR-ISMN</i>		
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11:30 - 13:00		WS.IX.2
Waste Valorization for Next-Generation Asphalt		
Chairs: Cesare OLIVIERO ROSSI, <i>University of Calabria</i> & Michela ALFE, <i>CRN-STEMS</i>		
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ADVANCED TECHNOLOGIES FOR CULTURAL HERITAGE: FROM CHARACTERIZATION TO SUSTAINABLE CONSERVATION STRATEGIES

14 -18 September

Co-organized with:

WORKSHOP COMMITTEE

in definition

This workshop brings together different perspectives across conservation science, materials science, chemistry, physics, archaeology, microbiology and nanotechnology, addressing the entire pathway from the characterization and interpretation of heritage materials to the assessment of their degradation and the development of innovative conservation solutions.

Particular attention will be devoted to advanced and non-invasive analytical approaches for investigating the composition, structure, manufacture and alteration of archaeological, artistic and architectural materials, together with emerging diagnostic methodologies for assessing their interaction with the surrounding environment. At the same time, the workshop will explore the growing contribution of nanotechnology and advanced materials to conservation, including functional and self-cleaning coatings, nanocomposites, hydrogels, photocatalytic systems, sustainable materials and other tailored solutions for protection, cleaning and consolidation.

Through contributions spanning archaeological artefacts, metals, ceramics, historical building materials and other complex heritage systems, the workshop aims to highlight how the integration of advanced characterization, innovative materials and sustainable approaches can generate new knowledge while supporting more informed conservation decisions. The activities and expertise of HERITAGE-Lab (Sapienza University of Rome) and CHross Lab (CNR-DSCTM) further illustrate the value of interdisciplinary networks and shared research infrastructures in bridging fundamental research, technological innovation and practical conservation requirement.

14 SEPTEMBER

14:00 - 18:00

WS.X.1

Cultural heritage: approaches for the deepening of their knowledge and advanced materials/nanotechnologies for the sustainable conservation

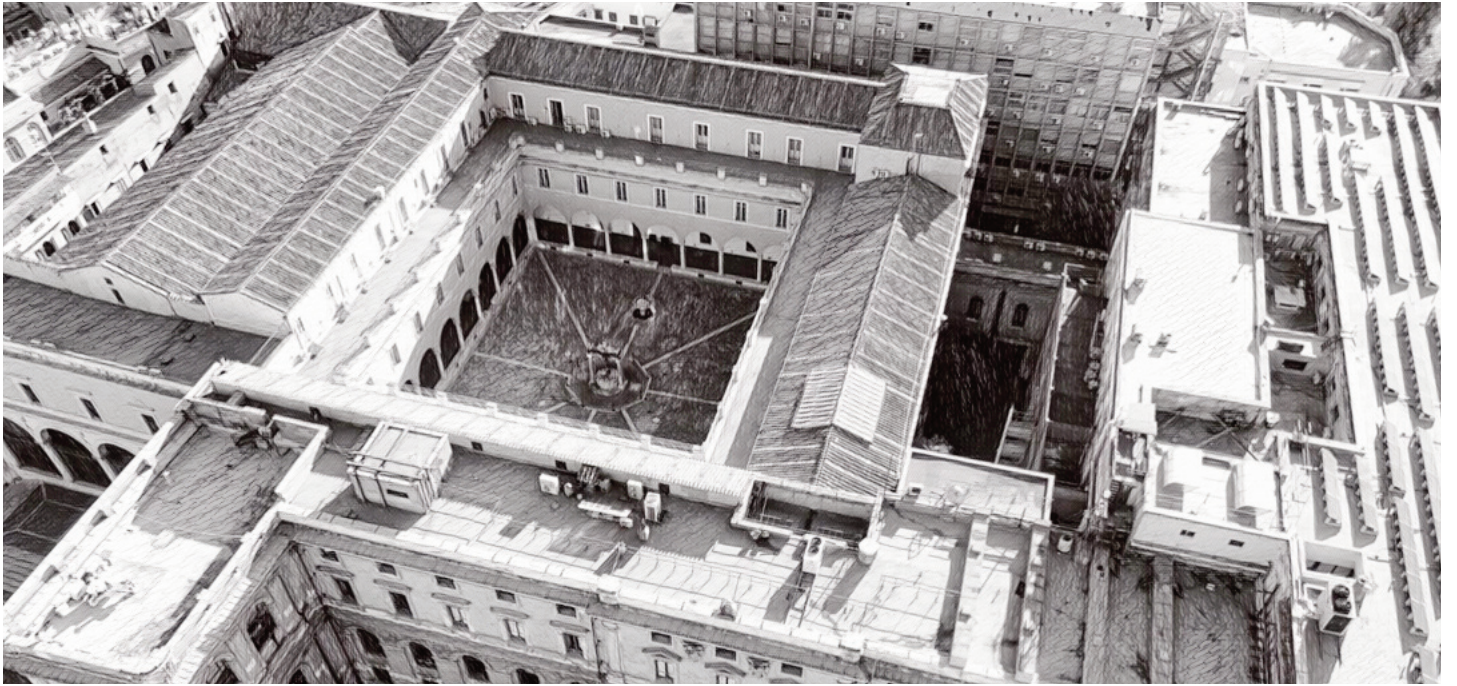
Chairs: Danilo DINI, *Sapienza University of Rome*, Giuliana FAGGIO & Giacomo MESSINA, *UniRC*

1	Michele GUIDA, <i>Università degli Studi di Salerno</i> Advanced and Innovative technologies for RAdon assessment for the Cultural Heritage Conservation and preservation in the framework of the activities of the International center for the advanced studies-Therade
2	Stefania PORCU, <i>Università degli Studi di Cagliari</i> Sustainable Phenyl Carbon Nitride-Based Self-Cleaning Coatings for Indoor Air Quality Improvement and Cultural Heritage Protection
3	Nicoletta RUSTA, <i>Charles University Praga</i> Smart Ceria-Based Nanocomposites for Sustainable Protection of Cultural Heritage Artworks
4	Letizia CECCARELLI, <i>Politecnico di Milano</i> Methodological challenges in using pXRF on archeological metals
5	Maria Cristina BIELLA, <i>Sapienza Università di Roma</i> Characterization of Architectural Terracottas from Falerii by pXRF
6	Maria Laura SANTARELLI, <i>Sapienza Università di Roma</i> Characterization by high resolution microscopies and spectroscopies of various Early Bronze Age artifacts from Motya and Jericho
7	Natasa TODOROVIC, <i>University of Novi Sad, Serbia</i> Low-Level Nuclear Techniques for Characterization of Advanced Materials and Nanomaterials
8	Francesco CARIDI, <i>Università degli Studi di Messina</i> Assessment of Radon Exhalation and Radiological Hazard in Nanostructure-Treated Building Materials of Historical and Artistic Interest
9	Giorgio SENESI, <i>ISTP-CNR</i> Analytical capabilities of handheld Laser-Induced Breakdown Spectroscopy (hLIBS) for investigating heterogeneous and corroded iron objects of possible meteoritic origin

18 SEPTEMBER

09:00 - 10:50		WS.X.2
CHross Lab (DSCTM-CNR) and Heritage-LAB (Sapienza) join forces in innovative and sustainable research for the safeguarding of cultural heritage 1/2		
Chair: Maria Laura SANTARELLI, <i>Sapienza University of Rome</i>		
1	Maria Laura SANTARELLI, <i>Sapienza University of Rome</i> The HERITAGE-LAB: the origin and the evolution	
2	Mohammad SHARBAF, <i>Sapienza University of Rome</i> Nanotechnology to combat salt crystallization in the Roman masonries	
3	Erica SONAGLIA, <i>Sapienza University of Rome</i> Hydrogels from wastes for the conservation	
4	Emily SCHIFANO, <i>Sapienza University of Rome</i> Microbiology and Nanotechnology as support of the conservation	
5	Charles CASSIDY, <i>Sapienza University of Rome</i> The nano-photocatalysis for the conservation of the historical buildings	

11:30 - 13:00		WS.X.3
CHross Lab (DSCTM-CNR) and Heritage-LAB (Sapienza) join forces in innovative and sustainable research for the safeguarding of cultural heritage 2/2		
Chair: Gabriella DI CARLO, <i>CNR-ISMN</i> & Stefano LEGNAIOLI, <i>CNR-ICCOM</i>		
1	Sabrina GUALTIERI, <i>CNR-Institute of Science, Technology and Sustainability for Ceramics</i> An unusual decoration of capodimonte porcelain fragment	
2	Ilse MANET, <i>CNR-ISOF</i> Sustainable Nanomaterials and Supramolecular Systems for Art Conservation	
3	Francesca BOCCACCINI, <i>CNR-ISMN</i> Sustainable Materials for Metal and Built Heritage Conservation	
4	Chiara MOLINARI, <i>CNR-ISSMC</i> Waste based direct ink writing for design, jewelry, accessories and ceramic heritage conservation	
5	Beatrice CAMPANELLA, <i>ICCOM-CNR</i> Designing Tailored Silver Nanoparticles for SERS-Based Analysis of Organic Dye Properties	



in definition

in definition

Visite guidate a Roma

Guided walking tours in Rome

Cinque itinerari per scoprire Roma oltre il programma scientifico

Le proposte saranno programmate nei giorni della conferenza sulla base delle preferenze raccolte attraverso il modulo di interesse. Le visite saranno disponibili in italiano e in inglese; calendario definitivo, costi e gruppi linguistici saranno confermati dopo la raccolta delle adesioni.

Five routes invite participants to discover Rome beyond the scientific programme. Tours will be scheduled during the conference according to the preferences collected through the expression-of-interest form. Visits will be offered in Italian and English; the final schedule, costs and language groups will be confirmed after registrations are collected.

LE PROPOSTE IN SINTESI

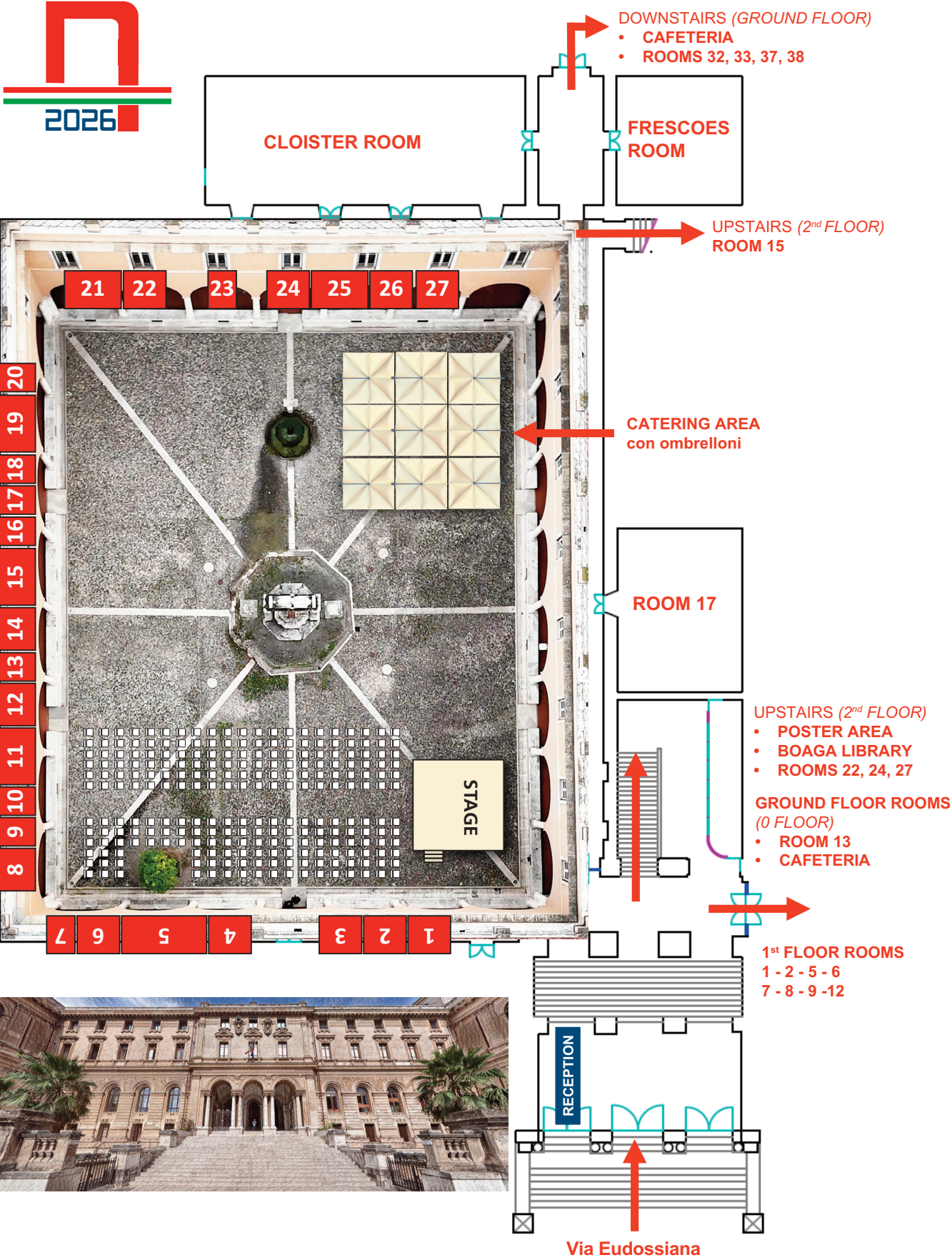
TOURS AT A GLANCE

#	TOUR	ORARIO TIME	COSTI COSTS	PARTENZA START
1	Roma caput mundi: dalle origini all'età imperiale <i>Rome, caput mundi: from its origins to the Imperial age</i>	16:00 18:00	€ 20	Piazza del Campidoglio
2	Roma dei mosaici: da San Pietro in Vincoli a Santa Maria Maggiore <i>Rome through its mosaics: from San Pietro in Vincoli to Santa Maria Maggiore</i>	16:00 18:00	€ 20	San Pietro in Vincoli
3	La Roma di Caravaggio: da Piazza del Popolo al Pantheon <i>Caravaggio's Rome: from Piazza del Popolo to the Pantheon</i>	16:00 19:00	€ 25	Piazza del Popolo
4	L'Isola Tiberina e il Ghetto ebraico <i>Tiber Island and the Jewish Ghetto</i>	16:00 18:00	€ 20	Isola Tiberina
5	La Roma degli artisti e del potere <i>Artists and power in Rome</i>	16:30 18:30*	€ 20	Piazza del Popolo

* Orario razionalizzato sulla durata di 2 ore e sul punto di incontro indicato alle 16:30; da confermare nel calendario definitivo.
/ Time aligned with the stated two-hour duration and 16:30 meeting time; to be confirmed in the final schedule.

Scan the QR code or follow the link to fill in the preference form and tell us which visits and social events you would like to join.





ALPHABETICAL ORDER

	AC SCIENTIFIC
	ASSING SPA
	BECKMAN COULTER Life Sciences
	CRISEL INSTRUMENTS
	D³4 HEALTH
	DPI SMART
	EMME 3 S.R.L.
	ENEA
	FBK - BRUNO KESSLER FOUNDATION
	GAMBETTI KENOLOGIA SRL
	HITACHI High-Tech Europe GmbH
	JEOL (ITALIA) S.p.A.
	LABO LINE Srl
	LabWorld (Editrice Industriale srl)
	LEICA MICROSYSTEMS Srl
	MALVERN PANALYTICAL S.r.l.
	MEDIA SYSTEM LAB S.r.l.
	MDPI
	PLATINUM "Aziende&Protagonisti"
	QUANTUM DESIGN ITALY
	RAITH GmbH
	RENISHAW
	Schaefer SEE Srl
	SIMITECNO SRL
	VERDER Scientific S.r.l.
	CARL ZEISS SPA con socio unico

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AC SCIENTIFIC

website: www.ac-scientific.com

contact person: **Aldo CONTI**

Mobile: +39 333 7702383

AC Scientific is a specialized distributor of advanced scientific instrumentation, serving research laboratories, universities, and industry across Italy and Southern Africa. Although newly established, the company draws on over 10 years of experience in the fields of materials characterisation, surface analysis, vacuum technology, and thermal analysis.

What sets AC Scientific apart is the careful selection of partners, each a recognised leader in their domain, known for technical excellence, reliability, and innovation. Whether it's ultra-sensitive thermal analysis, mass spectrometry for gas and surface studies, thin film deposition, or precision mounting in UHV systems, AC Scientific offers cutting-edge solutions tailored to the most demanding applications in science and technology.

More than just a supplier, AC Scientific provides consultative support, ensuring customers receive not only the right equipment, but also the technical insight to make full use of it. From initial discussion to installation, training, and after-sales service, we are committed to supporting every step of your research process.

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ASSING SPA

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website: www.assing.it

contact person: **Ettore GAROFALO**

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ASSING S.p.A is an Italian Company Founded in 1971, with ambitious ideas: to develop Responsible Innovation and Internationalization. Our goal is to produce technological innovation by collaborating with the most important European public and private sector Researchers

Assing is a leader in Italy in delivering high technology solutions and products for Industry and Research. Competences range from design to high technology infrastructure; from the identification of the appropriate analytical techniques to the provision of related systems; from technical-scientific consulting to the organization of training courses. **Assing**, designs, realizes and validates **clean rooms** for research laboratories and production areas and cell-factories. Thanks to its know-how, is able to offer a Global Solution to the various customer requests, as a partner, providing all means and services necessary to carry out its activities. The Company also plays an active role in Research, participating in several projects, both nationally and internationally, aimed at developing new technologies.

Automotive Division: We design and manufacture turnkey solutions and equipment for Automotive Powertrain Test Systems. Our skills include EOL test solutions for components of innovative powertrain for electric and hybrid vehicles (BEV, PHEV, Fuel Cell EV), as well as test benches for traditional applications such as Hot and Cold engine test benches, Automatic and Manual Transmissions, DCT Module

BOOTH 00

**BECKMAN COULTER Life Sciences**

<https://www.beckman.it/>

About Beckman Coulter Life Sciences

Accelerating answers to your important questions

Our company's heritage dates back to 1935, when Dr. Arnold Beckman founded National Technical Laboratories in California. That year, he sold 87 of his recently patented pH meters, a groundbreaking technology that could be used for everything from water quality testing to laboratory research.

Our mission today, which has changed little since 1935, is to empower those who are seeking answers to life's important scientific and healthcare questions.

This mission embodies all our efforts to help customers get the data and answers they need, when they need them.

These answers may be important for expediting development of a new, life-saving biopharmaceutical, to help exonerate an innocent person based on DNA evidence, or to help monitor patients with chronic diseases.

If your life's calling demands answers for these (or dozens of other) important endeavors, you need to know Beckman Coulter Life Sciences. No matter the type or scope of questions you have, we can help you get the answers you need—often faster than you thought possible.

BOOTH 00

**CRISEL INSTRUMENTS**

Via Mattia Battistini 177, Roma
tel 06 35402933

website: www.crisel-instruments.it
contact person: **Giancarlo PENCO**
email: penco@crisel-instruments.it

Crisel Instruments operates in the field of electro-optics applied to biology and physics, both through the distribution of equipment and components manufactured abroad and through the development of original systems, mainly developed to meet specific customer requirements. It is currently the leading company in Italy for "wide-field confocal epifluorescence microscopy" systems, with hundreds of systems installed in all the most important molecular biology research institutes in Italy.

BOOTH 00



D³4 HEALTH

c/o Sapienza University of Rome
Viale Regina Elena 295 | Building C 2nd floor
00185 Rome Italy
(+39) 06 4991 0289

contact person: **Lorena NAPPA**
email: fondazione@d34health.it

The project **Digital Driven Diagnostics, prognostics and therapeutics for sustainable Health care** originated as part of the **Complementary National Plan (CNP)**, which has a specific focus on Health, Environment, Biodiversity and Climate.

D³4Health, in particular, promotes research in the area of Health, through the development of digital technologies and data mining approaches, applied to the treatment of **5 main diseases** with the greatest impact on the population and health system: metastatic colon cancer, liver and bile duct cancer, central nervous system cancer, diabetes type I and multiple sclerosis.

Specifically, the project aims to develop **digital and biological twins** for the diagnosis, monitoring and treatment of five benchmark diseases, through the collection of health data analysed by artificial intelligence-based algorithms, collected on a multilayer platform and also obtained through the development and use of innovative technologies such as wearable devices, sensors and biomarkers.

The D³4 Health Foundation, established to manage the project, consists of **28 partners** including public and private universities, research institutes and companies. **Sapienza University of Rome** is the project leader and the scientific contact person is Prof. Carlo Catalano (direzionescientifica@d34health.it).

The project is also a great opportunity for **young researchers** to be part of an R&D program aimed at health system innovation through the digital technology transition, where Research and Business come together to jointly promote and support high-level research, technology transfer and higher education.

BOOTH 00



DPI SMART

Sapienza University of Rome - Department of
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Via Eudossiana 18 00184 Roma(RM), ITALY
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The DPI SMART project "Individual Protection Devices, Active Intelligent for Sustainable Multifunctional Reliable Resilient Protection Clusters" is promoted and supported by INAIL and involves the collaboration of highly qualified public and private partners.

Objective: The DPI SMART project involves the creation of a cluster of active and intelligent protective devices aimed at reducing risk exposure and improving worker health and safety.

System features: Sustainability in terms of cost and life cycle of PPE; Multifunctionality with respect to different types of detectable risk; Reliability in reporting critical events in Occupational Health and Safety; Resilience with reference to changes in technology and workers' conditions during the performance of activities and possible implementation of new work processes; The project contributes to the achievement of the objectives of the core area of INAIL's Institutional Mission, specifically the programmatic theme P6 "Innovative systems of health and safety management for risks related to the evolution of production processes, with particular reference to Industry 4.0"

Fields of application

These devices can be used: In the workplace to signal potential hazards due to manual handling of loads, exposure to excessive levels of chemicals with the purpose of a "Protection Cluster" that, when applied to current passive PPE (body, face and eye protection, APVR, helmets, footwear and gloves), adds "active" functionality while not affecting Certification, ensuring resilience, reliability and economic and production sustainability.

BOOTH 00

**EMME 3 S.R.L.**

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website: www.emme3-srl.it
contact person: **Marco CLEMENTI**
email: m.clementi@emme3-srl.it
contact person: **Matteo GUERRINI**
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Emme 3 was founded in 1980 to offer only the best scientific equipment to laboratories in the main research and industry sectors. We are specialized in the marketing and assistance of laboratory and scientific equipment, and their accessories and materials. For Emme 3 the relationship with the customer does not end with the purchase phase. Thanks to our specialized and committed personnel, we offer dedicated services aimed at theory-practice training for technicians and operators on how to use the equipment. We also offer post-sales services to the client should they have a problem. As an official Italian retailer of the best foreign manufacturers, Emme 3 is able to offer products that meet the highest quality standards. Only thanks to our team of qualified operators we can offer all the assistance and help you need.

Emme 3 is now global interlocutor for SEM/TEM users and Italian retailer for the best foreign manufactures within the electron microscopy field, as well as material science and energy research offering scientific instruments aimed to improve R&D such as:

- SEM/TEM preparations systems (carbon coater, sputter, glow discharge, Quorum)
- Plasma Cleaner for R&D and Industry (Henniker Plasma)
- material characterization solutions (cooling/heating/controlled atmosphere stages, Linkam)
- SEM/TEM preparation/analysis systems (cameras, detectors, holders, Gatan)
- micromanipulators e nanoprobes for SEM (Kleindiek)
- vacuum deposition systems (Moorfield)
- in-situ systems for material characterization by TEM (Protochips)
- glovebox to work under inert atmosphere (Vigor)

BOOTH 00

**ENEA**

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website: www.enea.it

ENEA is the National Agency for New Technologies, Energy and Sustainable Economic Development. It is a public body aimed at research, technological innovation and the provision of advanced services to enterprises, public administration and citizens. ENEA has highly qualified personnel, advanced laboratories, experimental facilities and excellent instruments for the realization of projects, studies, tests, assessments, analyses and training services, with particular reference to product and process innovation and the valorisation of results to contribute to the development and competitiveness of the national economic system.

Since its foundation in the 1960s, its strengths have been applied research, technology transfer and technical-scientific support to companies, associations, territories, central and local administrations: for this reason - unlike other research institutions - the Agency depends on the Ministry of Economic Development. Its focus sectors are energy technologies (renewable sources, energy storage, smart grids), for which the Agency is also the coordinator of the Energy National Technology Cluster, nuclear fusion and nuclear safety (the Agency is the reference national research coordinator), energy efficiency (with the National Agency for Energy Efficiency), technologies for cultural heritage, seismic protection, food safety, pollution, life sciences, strategic raw materials, climate change. Among the emerging issues, ENEA supports the productive system as well as public authorities (Ministry of environment and Ministry of economic development in particular) in the transition towards the circular economy and the resource efficiency. ENEA reinforces its efforts by collaborating with numerous national and international research bodies and institutions like Texas Tech University, Stanford Research Institute, New Delhi University, the Chinese Academy of Sciences, ICTP, TWAS, and participates in technological platforms and networks like EERA (European Energy Research Alliance), ECRA (European Climate Research Alliance), MEDENER, and Enterprise Europe Network, the largest network of services supporting competitiveness and innovation for SMEs.

BOOTH 00



FBK - BRUNO KESSLER FOUNDATION

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website: www.fb�.eu

contact person: **Massimo BERSANI**

e-mail: bersani@fbk.eu

Fondazione Bruno Kessler (FBK) is a research institute specializing in the fields of technology, innovation, humanities and social sciences, based in Trento. Established by law by the Autonomous Province of Trento, Fondazione Bruno Kessler is a private entity whose mission is to promote and contribute to the advancement of knowledge with a focus on the fields of science and technology that allow for greater and faster economic and social benefits. Active since 2007, Fondazione Bruno Kessler takes up the legacy of the Istituto Trentino di Cultura, founded in 1962 by Bruno Kessler. It is a research infrastructure that from the year of its establishment to the present has grown to accommodate a staff of more than 600 researchers and support staff, 170 PhDs, 200 visiting professors and doctoral candidates, and 700 affiliates and accredited students.

There are more than 70 foreign researchers at FBK and they come not only from major European countries but also from non-European countries such as the United States, China and India, Brazil and Argentina, Algeria, Iran, Pakistan, Australia and Russia. Thanks to the contribution of nearly 80 experienced researchers, FBK has directed its research to the testing of widespread and verifiable artificial intelligence integration. FBK can, in fact, boast a solid tradition in the field of AI, which goes all the way back to the days of the ITC – Istituto Trentino di Cultura and owes its origin to the collaboration with the greatest and first artificial intelligence experts of the time, including Luigi Stringa, Tomaso Poggio, John McCarthy, Renato De Mori and Oliviero Stock.

The campus consists of two hubs: one dedicated to technology and innovation in Povo, in the hills surrounding Trento, and the other dedicated to the humanities and social sciences in the heart of the city. The two hubs house 12 research centers, 7 laboratories - covering an area of nearly 4,000 square meters - and 2 libraries. A vibrant ecosystem of co-located organizations, enterprises, joint labs and spin-offs revolves around FBK.



GAMBETTI KENOLOGIA SRL

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contact person: **Michela RIZZI**

email: michela.rizzi@gambetti.it

Gambetti Kenologia stands out as esteemed presence in the realm of surface characterization, micro and nano fabrication, surface treatment systems, and vacuum and ultra-vacuum components, for nearly five decades.

Today we are a solid, well-established company offering expert technical consultancy, a comprehensive portfolio of solutions, and dedicated pre- and post-sales support.

Our approach is grounded in continuous innovation. Over the years we have built meaningful collaborations with leading international organizations including Ferrotec/Temescal, Polytechnik, Heidelberg Instruments, MKS, Iontof, Thermo fisher scientific.

We distribute advanced instruments and systems from long-standing partners — Park Systems, KLA, Oxford Instruments Plasma Technology, and Stoe — and have recently expanded our offering for the Italian market with new innovative partners active in thin film technologies: **Atlant 3D, I-Photonics, Science Probe and Ihara Science**.

Tradition and cutting-edge advancement, side by side.

BOOTH 00

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HITACHI

HITACHI High-Tech Europe GmbH

Europark Fichtenhain A12 47807 Krefeld (Germany)
tel: +39 3471383716

website www.hitachi-hightech.com
contact person: **Paolo DE NATALE**
email: paolo.denatale.pd@hitachi-hightech.com

A trading company with an emphasis on creativity and leading-edge technology, Hitachi High-Tech is a member of the Hitachi Group.

Hitachi High-Tech in Europe handles a wide variety of products - from computers and peripherals to scientific instruments and systems, electronic devices, and industrial machinery and materials.

BOOTH 00

**JEOL (ITALIA) S.p.A.**

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Fax +39 02 90414343

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contact person: **Gabriele BULLA**
email: info@jeol.it

JEOL (ITALIA) S.p.A. is a leading global supplier of scientific instruments used for research and development in the fields of nanotechnology, life sciences, optical communication, forensics, and biotechnology.

Utilizing its unique technologies, products, services, and knowledge, JEOL (ITALIA) S.p.A. helps its customers make significant breakthroughs in product development and scientific research.

JEOL (ITALIA) S.p.A. products range from scientific instrumentation to industrial equipment including Scanning electron microscopes (**SEM**), Transmission electron microscopes (**TEM**), Auger micro probe analyzers (**AES**), Electron probe micro analyzers (**EPMA**), Photoelectron spectrometers (**XPS**), **Mass spectrometers**, **NMR** spectrometers, Electron spin resonance (**EPR**), and semiconductor tools.

JEOL (ITALIA) S.p.A. ensure both commercial and service assistance of JEOL instruments installed on the Italian territory thanks to highly organized and specialized structure.

This year JEOL celebrate **75th anniversary** of its founding.

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Labo Line arises from the experience gained in analytical chemistry and the ability to source the best technical solutions in some specific areas in the world market.

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LabWorld is an Italian technical B2B web portal dedicated to the laboratory sector. On LabWorld.it you can find information about technical instrumentations, analytical techniques, life science, meetings and exhibitions of this trade and the latest pharma and healthcare news.

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Leica Microsystems, a Danaher company, provides integrated imaging and analysis solutions that enable the generation of insight from complex imaging to support faster, informed decisions across life science, medical, and industrial applications. Guided by our purpose to reveal what is invisible, we partner with customers to turn this insight into impact, contributing to a better and healthier world.

Our portfolio spans workflows from sample preparation for Electron Microscopy to AI-enabled analysis, built on more than 175 years of microscopy experience and a culture of continuous improvement, customer focus, and innovation.

Headquartered in Wetzlar, Germany, we operate globally with manufacturing and development sites and serve customers in more than 100 countries.

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Media System Lab has been a reference for microscopists since 1998 and today we have grown to occupy two locations with a total of over one thousand square meters.

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Our problem-solving capabilities are backed by advanced technical expertise and innovative instruments. We offer a wide range of electron microscopes with tungsten filament or Field Emission Gun. From the small tabletop to the highest performing SEM FEG, from the most compact and innovative TEM to the Dual Beam FIB, we provide customized solutions for every budget and application.

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MDPI

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For more than 40 years **Quantum Design (QD)** has been providing technology solutions to researchers in the fields of **physics, chemistry, biotechnology, materials science, and nanotechnology**. Established in 1982 in San Diego, California, Quantum Design is the leading commercial source for automated materials characterization systems offering a variety of measurement capabilities.

QD instruments are found in the world's leading research institutions and have become the reference standard for a variety of magnetic and physical property measurements. Quantum Design instruments are cited in, and provide the data for, more scientific publications than any other instrument in the fields of **magnetics and materials characterization**. This means that each year, literally hundreds of scientific publications, advancing the science of materials, use data generated from QD instruments. An essential part of providing scientific solutions to researchers around the globe is to also offer **state-of-the-art instruments** from other leading manufacturers. These manufacturers are chosen by Quantum Design not only for their **innovative products**, but also because they believe in the **same level of customer satisfaction and support** that scientists have come to expect from QD products worldwide.

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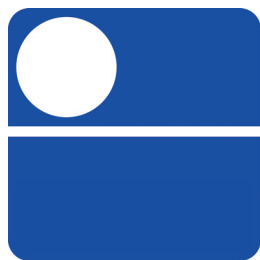
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