Virginia Signorini obtained her Ph.D. in Chemical Engineering from the University of Bologna in 2025. She is currently a postdoctoral researcher and laboratory technician at the Mem-Lab and Transport Lab of the Department of Civil, Chemical, Environmental and Materials Engineering (DICAM), University of Bologna.

Her research focuses on polymeric materials for Carbon Capture, Utilization and Storage (CCUS) technologies, with particular emphasis on membrane-based gas separation for CO_2 capture and the characterization of non-metallic components for high-pressure CO_2 transport. Her experimental activities involve the determination of gas sorption, permeability, diffusivity, and swelling in polymeric materials under a wide range of operating conditions relevant to carbon capture and hydrogen and CO_2 transport applications.

Alongside experimental investigations, her research includes the development and application of thermodynamic and transport models to describe and predict gas sorption and diffusion in polymers. These modelling activities support the interpretation of transport phenomena and the design of advanced materials with improved separation performance, barrier properties, and long-term reliability for sustainable energy and carbon management applications.