

Porous materials for gas separation and ion exchange membranes: insights from NMR

17 November 2025

PROGRAM

MORNING

9:00 **Registration and welcome coffee**

10:00 **Opening** Francesca Martini and Michele Chierotti

MATERIALS FOR GAS SEPARATION MEMBRANES - **Chair:** Elisa Carignani

10:10	Alessio Fuoco CNR-ITM Rende	Innovative membrane materials for gas separation
10:45	Lucia Calucci CNR-ICCOM Pisa	Porous materials for gas separation: insights from solid state NMR
11:20	Silvia Bracco Università Milano Bicocca	Selective CO ₂ capture and photo-switch in nanoporous architectures by solid state NMR
11:40	Elisa Della Latta Università di Pisa	Understanding CO ₂ -polymer interactions in fluorinated aryl ether membranes by solid state NMR

Short presentations - **Chair:** Marco Geppi

	Valentina Colombo Università di Milano	Metal-Organic Frameworks: crystallographic explorations of porosity and functionality
12:00	Giuseppe Mastronardi Università di Torino	Ethylenediamine grafted via pyrazole-based MOF for CO ₂ Capture
- 12:45	Anna M. Ferretti CNR-SCITEC Milano	Melamine-based POP for CO ₂ capture and valorization
	K. Klemenčič and J. Höfferle National Institute of Chemistry Ljubljana	Postsynthetic modification and solid-state NMR insights into MOF CO ₂ capture performance
12:45	Lunch	

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AFTERNOON

MATERIALS FOR ION EXCHANGE MEMBRANES - Chair: Francesca Martini

14:00	Monia Montorsi Università di Modena e Reggio Emilia	Sustainable design by statistical approach of materials for ion exchange membranes in fuel cells and water electrolyzers
14:35	Michael Vogel Technische Universität Darmstadt	NMR studies of liquid and ion dynamics in confinement
15:10	Assma El Kaddouri Université de Lorraine	Characterizing ionomer membranes for PEM fuel cells: the added value of NMR
15:30	Andrea Giovanelli Università di Pisa	Polymer and water dynamics in a polyketone-based anion exchange membrane

Short presentations - Chair: Francesca Nardelli

	Fabio Carniato Università del Piemonte Orientale	Characterizing ion exchange and adsorption mechanisms of paramagnetic metal ions in layered and porous materials through ^1H NMR relaxometry
15:50	Giacomo Saielli CNR-ITM Padova	A computational study of the effect of pore size and void distribution on $\delta(^{129}\text{Xe})$ in polymeric membranes
16:30	Franca Castiglione Politecnico di Milano	Type II porous liquids investigated by ^{129}Xe NMR spectroscopy
	Anna Piras CNR-ICCOM Pisa	Development of QM-derived force fields for gas molecules adsorbed in porous materials
16:30	Concluding remarks	
16:40	Coffee and networking	