UNIVERSITÀ
DEGLI STUDI
FIRENZE

DICUS
DIPARTIMENTO DI CHIMICA
"UGO SCHIFF"

ECCELLENZA 2023-27

Andrea ROSSIN

Consiglio Nazionale delle Ricerche – Istituto di Chimica dei Composti di Coordinazione (CNR-ICCOM)

19 febbraio 2026

11:00

Aula A1 Enrica Calabresi

Campus di Sesto – Città Metropolitana

Terrà una conferenza dal titolo:

THE WONDER OF METAL-ORGANIC FRAMEWORKS: FROM MOLECULAR TINKERTOY TO THE NOBEL PRIZE

per il Dottorato di ricerca in Scienze Chimiche

la S. V. è invitata a partecipare.

Prof.ssa Anna Maria Papini
Coordinatore del Dottorato

Prof. Giuliano Giambastiani
Organizzatore

The wonder of Metal-Organic Frameworks: from molecular Tinkertoy to the Nobel Prize

Abstract: Metal–Organic Frameworks (MOFs) represent a groundbreaking class of crystalline, porous materials formed by linking metal ions or clusters with organic ligands, generating highly tunable architectures with enormous internal surface areas and well-defined cavities. Through rational design of metal nodes and organic linkers, MOFs offer exceptional versatility for applications in gas storage and separation, catalysis, sensing, and environmental remediation. In 2025, the Nobel Prize in Chemistry was awarded to Susumu Kitagawa, Richard Robson, and Omar Yaghi "for the development of metal–organic frameworks," marking the recognition of MOFs as molecular architectures capable of addressing some of humanity's greatest challenges. Their pioneering work has prompted the creation of tens of thousands of new frameworks, some of which can harvest water from desert air, capture carbon dioxide, remove toxic pollutants, or host catalytic transformations. As the field evolves, MOFs continue to bridge fundamental chemistry and real-world impact, embodying a new paradigm where molecular design meets global sustainability goals.

Andrea Rossin was born in Biella, Northern Italy, in 1974. He got his degree with full marks in Inorganic Chemistry in 1999 at the Università di Torino (Italy), with a thesis on the IR/Raman study of organometallics containing aromatic C_xH_y rings. In the years 2001-2004 he developed his Ph.D. work on the synthesis, characterization and computational analysis of transition metal boryl ($M\text{-}BR_2$) and borylene ($M{=}BR$) complexes, at Cardiff University (Wales, UK). In year 2005 he took part to a post-doctoral training project at the Universitat Autònoma de Barcelona (Barcelona, Spain), dealing with DFT studies of homogeneous catalysis in aqueous media. In 2010 he became permanent researcher at the Institute of Chemistry of Organometallic Compounds of the Italian National Research Council (CNR-ICCOM - Florence); from 2021 he is Senior Researcher at the same Institute. His research interests focus on thiazole-, thiophene- and selenofene-containing Metal-Organic Frameworks (MOFs) synthesis and applications in gas storage/separation and wastewater pollutants luminescence sensing/adsorption. He has co-authored *ca.* 140 papers published on international peer-reviewed journals [*h*-index (Scholar) = 40], and he has given more than 100 oral presentations at national and international conferences. To date, he has been involved (either as a coordinator or as a participant) in 15 Italian and European research projects, in the period 2005-2025.