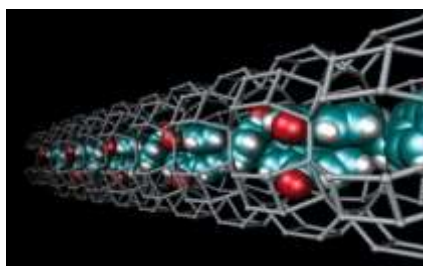
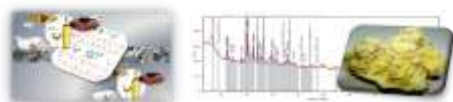
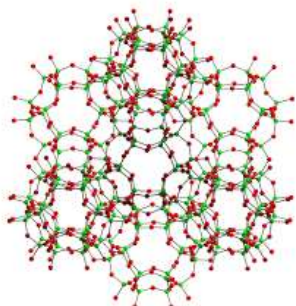


Nanoporous materials

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RESEARCH TOPICS

Our research focus on the physical chemical characterization of natural and synthetic porous materials to exploit their unique properties for advanced application, in particular in the field of:

- **Environmental application:** water and soil remediations, agronomy, carbon capture, sulphur-bearing gases capture and storage;
- **Energy and resources:** recovery of critical (i.e. REE) raw materials, storage and recovery of energy;
- **Realization of advanced devices:** gas sensing devices, antenna systems;
- **Human health:** determination of fibers toxicity, drug carrying.

Skills

- Synthesis and functionalization of zeolites, synthesis of organic inorganic hybrid advanced materials for technological applications
- Non-ambient conditions induced reactions monitoring
- Characterization of nanoporous materials with structural (XRD, vibrational and electronic spectroscopy, NMR, XAS), morphological (HR-TEM, HR-SEM,) and textural techniques: BET, TGA, DSC
- Preparation (patent inventors) zeolite-based soil improvers and corroborants for organic and biodynamic farming



Collaborations

- Prof. Gianmario Marta- Università di Torino (I).
- Prof. Ettore Fois and Gloria Tabacchi DSAT-Università dell'Insubria (I).
- Dr. Mario Santoro, CNR, LENS Sesto Fiorentino (I).
- Dr. Francesco Di Renzo Equipe Matériaux Avancés pour la Catalyse et la Santé, ENSCM, Institute Charles Gerhardt Montpellier (F).
- Dr. Julien Haines, CNRS Institute Charles Gerhardt Montpellier (F).
- Dr. Jean Daou, CNRS, Equipe Matériaux à Porosité Contrôlée (MPC), Institut de Science des Matériaux de Mulhouse, Université de Haute-Alsace, Institut J.B. Donnet (F).
- Dr. Svetlana Mintova and Valtech Valentin CNRS, Laboratory of Catalysis and Spectrochemistry (LCS), ENSICAEN, Normandy University, Caen (F).
- Dr. Federico Alabarse, XPRESS beamline, Elettra Sincrotrone Trieste (I)
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