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Prof. **M. Lucia Curri**

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Resume

M. Lucia Curri is Full Professor of Physical Chemistry at the Chemistry Dept. of University of Bari Aldo Moro (Italy) and associate research scientist at Institute for Physical and Chemical Processes of Italian National Research Council, IPCF-CNR. She received her PhD from the University of Bari (Italy) in 1997, then she worked at CNR until 2018, when she was appointed at University of Bari. She is Vice-President of Italian National Interuniversity Consortium of Materials Science and Technology (INSTM) and Fellow of the Royal Society of Chemistry. She is Associated Editor of Physical Chemistry Chemical Physics (PCCP) RSC journal. She is active in the field of material chemistry, aiming to design and fabrication of inorganic and hybrid solids at the nanoscale for obtaining multifunctional nanostructured materials and investigation of their properties. Her research is focused on the development of original strategies for the preparation and functionalization of colloidal nanocrystals based inorganic and hybrid materials, both for fundamental studies and photocatalytic, optoelectronic, energy, and biomedical applications. She is expert in surface engineering of nanoparticles and nanocrystals, for their bioconjugation, organization in mesoscale structures and integration in nanocomposites, also in combination with carbon based nanomaterials. She has been and is coordinator and PI in several European and National research projects, dealing with design and realization of nanostructured functional materials for different applications.

April 08 2024 time 15.00 17:00 (DCCI, Aula 1)
April 09 2024 time 15:00- 17:00 (DCCI, Aula 1)
April 10 2024 time 16:00- 17:00 (DCCI, Aula 1)

"Photocatalytic nanostructures and nanocomposites: sustainable solutions for tackling environmental challenges"

Abstract

In the last decades, increasing concerns have been arisen on environmental issues related to the decontamination of water from a series of different pollutants, including organic compounds and microbial species need to be tackled. The development of cost-effective and stable materials, methods and technology for providing the fresh water in adequate amounts is a critical need for environmental protection.

The recent advances in the control of nanoscale materials and in the investigation of photocatalytic processes for degradation of organic pollutants and inactivation of bacteria and viruses in water envision a new scenario for nanoscience-inspired design, synthesis, and formulation of industrially relevant catalytic materials for water remediation.

Original synthetic approaches have been developed to achieve diverse catalytically active nanoparticles, with peculiar size dependent optoelectronic and catalytic properties, with controlled size, shape, also coupled or doped with relevant compounds, and in multifunctional nanocomposites, providing flexible and versatile tools to access an innovative class of multifunctional materials with superior photocatalytic properties in the UV and visible range. In addition, realization and control of composite particle architecture over multiple length scales are fundamental for catalyst scale-up and large-scale manufacturing as well as for their exploitation in specific chemical processes, including design and realization of advanced reactors based on properly fabricated reusable and recoverable catalysts.