Inauguration of Academic Year Seminar
Doctorate of Science and Technology
of Chemistry and Materials

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Maurizio Prato is currently Ikerbasque Research Professor at CIC biomaGUNE in San Sebastián, Spain. He began his career as a researcher in the Department of Organic Chemistry at the University of Padova in 1983, moving to the University of Trieste in 1992, where he remained until his retirement in 2023. He has carried out research activities at Yale University and the University of California, Santa Barbara. He has been Invited Professor at the Department of Chemistry, École Normale Supérieure, Paris; at the University of Namur, Belgium; at ISIS, University of Strasbourg; France, and at the University of Mons, Belgium. He has held two honorary degrees in Materials Sciences and Biotechnologies (University of Rome Tor Vergata and University of Salento, respectively) and an honorary PhD in Chemistry (Universidad de Castilla-La Mancha, Spain). He has received numerous awards, including the Giulio Natta Gold Medal from the Italian Chemical Society, the Smalley Award from the Electrochemical Society, the ACS Nano Lectureship, and, most recently, the E-MRS 5-year Materials Impact Prize, from the European Materials Research Society. He has been awarded two prestigious ERC Advanced Grants, was named a fellow of the Accademia dei Lincei in 2010, the Istituto Veneto di Scienze, Lettere e Arti, the European Academy of Sciences, the Academia Europaea, the National Academy of Inventors, USA, and a foreign fellow of the Royal Spanish Academy of Sciences. He is an Honorary Professor at Xi'an Jiaotong University, Xi'an, China.

His research focuses on the preparation of new functional materials for applications in materials science and nanomedicine, such as spinal cord repair, production of hydrogen from water, and reduction of carbon dioxide into useful chemicals.

Venerdì 14 Febbraio 2025
Aula Magna, DCCI
ore 14.30

Turning the Impossible into Possible: the Power of Chemistry

Abstract

The solution to particularly complex problems requires significant effort from the scientific community, employing multidisciplinary approaches and modern tools that are the result of years of research and development. Despite the extraordinary progress made by science, not all problems have been resolved, and some—such as wars, world hunger, human rights issues, and poverty—may not be fully solvable. However, certain challenges, particularly those related to health and the environment, can and must be addressed through scientific research.

In this presentation, we will explore how chemistry can play a crucial role in our society. Specifically, we will illustrate an innovative approach to treating nerve injuries, which combines the use of carbon nanotubes with moldable polymers to reconnect damaged nerves. Although our research has not yet led to definitive clinical solutions, it has opened new and promising horizons for the development of potential therapeutic interventions.

We will also discuss energy, a crucial topic for the future of our planet. The intensive exploitation of fossil fuels has caused significant damage to the environment, and these resources, in addition to being finite, do not represent a sustainable solution. Efforts are already underway to address the issue of energy supply through alternative sources, such as photovoltaics.

One of the most promising options is the production of hydrogen from water, a process known as water splitting. However, this technology is currently limited by high production costs. To tackle this challenge, we have developed an innovative catalytic system based on the combination of perylene bisimides and polyoxometalates. These components self-assemble into a hierarchical supramolecular structure driven by electrostatic forces. This biomimetic approach opens up new opportunities for water splitting, offering a potentially more efficient and sustainable solution.

To find out how to reach the Department, go to http://www.chimica.unige.it. For further informations on this specific seminar or in order to ask for an appointment with the speaker after or before the seminar, contact **Prof. Luca Banfi**, room 818 e-mail: luca.banfi@unige.it