



DSL2024 | Barcelona, Spain
20th International Conference on Diffusion in Solids and Liquids

BARCELONA, 24-28 June 2024
www.dsl-conference.com

SHORT BIO:

Dr. José M. Serra (1976) became a Full Professor in Spain in March 2015 and was appointed as ITQ director in 2022. His research has evolved since early work on catalysis to materials for energy applications including reaction kinetics, mass transfer, thermodynamic modelling, membranes for gas separation and fuel cells for energy delivery. He did his Ph.D. work at the Institute of Chemical Technology (ITQ) directed by Prof. A. Corma in collaboration with the Institute Français du Pétrole. The thesis involved the development of new tools for combinatorial catalysis and its application in the discovery and optimisation of industrial catalysts. Most of his work has been focusing on the fundamental understanding of materials for chemical engineering and energy applications. Upon completing his PhD, JMS spent 2 years at the Forschungszentrum Jülich (FZJ) in Germany working in the area of CCUS and nano-structured electrocatalysts for solid oxide fuel cells. FZJ is one of the top world research providers in the area of Energy, including a Nobel Laureate. During his time at FZJ, Prof. Serra acquired fundamental and practical knowledge in materials for energy engineering application based on the German system of research. Subsequently, JMS joined the Institute of Chemical Technology (ITQ) at UPV where he took leadership roles since the beginning of his appointment. As an early career researcher, Since 2023, he has been CSIC national representative in Hydrogen Europe Research. Apart from other leadership roles, Prof. Serra is currently the Head of the Energy Conversion and Storage Research Group at ITQ-UPV.

JMS has authored more than 205 scientific articles and 29 patents ranging from catalysis of hydrocarbons and syngas conversion, proton conducting membranes for

hydrogen separation, solid-oxide cells and gas-separation membranes, among many others. Many of his patents have been assigned to the industry, such as AMTECH GmbH (Germany), French Institute of Petroleum, TotalEnergies and CoorsTek. Prof. Serra has also been successful in the IP transference and commercialisation of his research efforts as a Co-founder of Kerionics SL, a Spanish spin-off company based on solid-oxide cell stacks for low-carbon H₂ and O₂ generation for medium-scale industrial processes, which received the prestigious award from REPSOL.

JMS activities focus on the application of catalysis, materials science and engineering in:

- a. Understanding fundamental physicochemical mechanisms of industrial processes.
- b. Development of electrochemical cells, electrocatalysts and H₂ technology.
- c. Development of selective conducting membranes and advanced catalytic reactors.
- d. Process intensification and optimisation in energy and chemistry industry.
- e. Industry decarbonisation and CCUS.

Selected Honours and Awards

- Air Liquide Grand Challenge (2019) - Lower-CO₂ H₂
- Royal Spanish Engineering Academy Medal 2016 (Juan López de Peñalver)
- European Ceramic Society Young Scientist Award (ECerS) in 2015.
- Christian Friedrich Schonbein Contribution to Science Medal by the European Fuel Cell Forum (Luzern, Switzerland) in 2009.
- Exxon Mobil Chemical European Science and Engineering award (2005)
- Best PhD thesis awarded by the Spanish Catalysis Society (SECAT) in 2005