Tackling Global Challenges, Delivering Global Impact: the Role of Chemical Engineering

Speaker

Raffaella Ocone
(Heriot-Watt University, United Kingdom)

Chemical engineering is about turning ideas into impactful, scalable solutions. Solving global issues requires working across multiple scales, from local insights to global systems. The talk will explore how the discipline plays a crucial role in the energy transition, contributing to multiple aspects of the process, such as improving the efficiency and environmental impact of existing technologies; scaling up low-carbon technologies; accelerating carbon capture, storage, and utilisation; and integrating renewable energy into current systems. Key contributions to sustainable solutions include system thinking approaches and the application of Artificial Intelligence, both of which are essential for enabling a faster and more equitable transition.

Raffaella Ocone, *OBE FRSE FREng is Professor of Chemical Engineering at Heriot-Watt University and a Fellow of the Royal Academy of Engineering. Born in Morcone, Italy, she earned her Laurea from the University of Naples Federico II and her MA (1989) and PhD (1992) from Princeton University. She began her career as a lecturer in Naples, later holding roles at the University of Nottingham and visiting positions in the United States, France, Germany, and Italy. Appointed at Heriot-Watt in 1999, she became the first female professor of chemical engineering in Scotland. She is also a Chartered Engineer and Chartered Scientist. Ocone is internationally recognised for her research on modelling complex reactive systems, with seminal contributions in the lumping methods applied today broadly in the field. Her contributions earned her major honours, including Cavaliere of the Order of Merit of the Italian Republic (2006) and OBE (2019). She has also contributed to national policy through the Royal Academy of Engineering, where she co-authored a key report on biofuels and chaired the Teaching Ethics group.*

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