中国科学院大连化学物理研究所
DALIAN INSTITUTE OF CHEMICAL PHYSICS, CHINESE ACADEMY OF SCIENCES

能源催化转化全国重点实验室
STATE KEY LABORATORY OF CATALYSIS

能源催化大讲堂 第一期

Energy Challenges from a Materials Perspective

报 告 人 Professor Federico Rosei, University of Trieste, 加拿大皇家科学院院士、加拿大工程院院士、欧洲科学院院士、澳大利亚物理研究院院士、非洲科学院院士、世界艺术与科学院院士、英国皇家化学学会会士、联合国教科文组织主席

报告时间 2024 年 11 月 25 日（星期一），9:00-11:00

报告地点 能源学院 M1-4 会议室

Introduction:

Federico Rosei's research interests focus on structure/property relationships in nanomaterials and their use as building blocks in emerging technologies. His research has been supported by multiple funding sources for a total in excess of M$ 18. He has published over **500** articles (including *Science, Nature Phot., Nature Mater., Nature Chem., Proc. Nat. Acad. Sci., Adv. Mater., Angew. Chem., J. Am. Chem. Soc.*), which have been cited over **27,100** times (H index = **87**). He is Fellow of numerous prestigious national and international societies and academies, including: the Royal Society of Canada, the European Academy of Science, the Academia Europaea, the European Academy of Sciences and Arts, Royal Flemish Academy of Belgium for Science and the Arts (Foreign), the African Academy of Sciences, the World Academy of Art and Science, the World Academy of Ceramics, the American Physical Society, the Materials Research Society, AAAS, the American Ceramic Society, Optica, SPIE, the Canadian Academy of Engineering, ASM International, the Royal Society of Chemistry (UK). He has received several awards and honours, including the Rutherford Memorial Medal in Chemistry (Royal Society of Canada 2011), the Herzberg Medal (Canadian Association of Physics 2013), the Brian Ives Lectureship (ASM international 2013), the Award for Excellence in Materials Chemistry (CSC 2014), the NSERC EWR Steacie Memorial Fellowship (2014), Chang Jiang Scholar Award (China), the Outstanding Engineer Award (IEEE Canada 2017), the President's Visiting Fellowship for Distinguished Scientists (Chinese Academy of Sciences 2017 and 2024), the IEEE Montreal Gold Medal (2018), the Blaise Pascal Medal (European Academy of Science 2019), the Wolfson Fellowship (Royal Society), Knight of the National Order of Quebec (2023) and the AVS Nanotechnology Recognition Award (2024).

Abstract:

The quest for sustainable development dictates an urgent transition from fossil fuels to renewables. This presentation focuses on next generation (solar) energy technologies from a materials perspective. We study structure property/relationships in advanced materials, emphasizing multifunctional systems that exhibit several functionalities. Such systems are then used as building blocks for the fabrication of various emerging technologies. In particular, nanostructured materials synthesized via the bottom–up approach present an opportunity for future generation low cost and low energy intensive manufacturing of devices. We focus in particular on recent developments in solar technologies, including third generation photovoltaics, solar hydrogen production, luminescent solar concentrators and other optoelectronic devices, highlighting the role and importance of critical raw materials.

报告联系人：罗丹，丁俊霞（DNL29，39787106）

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