



Academic Lecture



State Key Laboratory
of Chemical Resource Engineering

Recent Advances in Solar Energy Mediated CO₂ Reduction

报告人: Prof. Jinhua Ye (National Institute for Materials Science (NIMS))

时间: 2019-12-16 (周一) 上午 9:30-10:30

地点: 化学工程楼A203



报告简介:

Photocatalytic CO₂ reduction reaction (CO₂RR) toward chemical feedstocks relying on sunlight and suitable catalysts stands out as an attractive approach to CO₂ sequestration. This talk will introduce the latest research activities in our group, focusing on our challenges on rational design and engineering of active sites for CO₂ activation and reduction. Controlling of surface vacancies, implanting single atom, and anchoring isolated co-catalyst have been demonstrated of great significance on the photocatalytic CO₂RR activity over semiconductor photocatalysts; their impacts were disclosed by in situ spectroscopic observations and theoretical simulations, deepening the understanding of the CO₂RR pathways. Moreover, our recently works have demonstrated that CO₂ molecules can be polarized and subsequently activated by utilizing the highly energetic electrons excited by the localized surface plasmon resonance of plasmonic nanometals, assisted by thermal energy. Recent advances in rational designing of nano catalysts for solar energy mediated CO₂ conversion, as well as the crucial issues that should be addressed in future research activities will also be introduced and discussed.

报告人简介:

Jinhua Ye received her PhD from the University of Tokyo in 1990, and is now a Principle Investigator at National Institute for Materials Science (NIMS), Japan. She is also an adjunct Professor at Tianjin University and Hokkaido University. Her current research interests focus on the research and development of photo functional materials and their applications in the fields of environment preservation and new energy production. She has contributed more than 500 high quality journal publications, which have been cited over 36,000 times (h index: 98). She has been admitted as a Fellow of the Royal Society of Chemistry, and also selected as the 2016, 2018 and 2019 Highly Cited Researcher (Clarivate Analytics). She is currently serving as the Associate Editor of RSC Catalysis Science & Technology.

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