ACCMS-Global Research Center
SRMIST, Chennai India

Webinar #12

Prof. Hannu Häkkinen

Departments of Physics and Chemistry,
University of Jyväskylä Finland

Title: **Monolayer-protected metal clusters as atomically precise, tunable nanomaterials**

30th August 2022, 12.30 – 2.00 pm IST

Registration link: *https://tinyurl.com/2ufv643z*

Biography

Prof. Hannu Häkkinen received his Ph.D from University of Jyväskylä (JYU), Finland in 1991. Currently, he is a Full Professor in Computational Nanoscience (affiliated with Departments of Physics and Chemistry) and Vice Dean of Faculty of Mathematics and Science at JYU. He has previously served as the Director of the Finnish National Graduate School in Nanoscience, as the Scientific Director of JYU Nanoscience Center, as the Academy of Finland Professor, and as Visiting Professor at Xiamen University in China. Prof. Häkkinen is an internationally renowned expert in computational nanoscience. His research group investigates physical, chemical, catalytic and bio-compatible properties of ligand-protected metal nanoclusters and their self-assemblies using a variety of computational techniques and artificial intelligence. He has co-authored close to 300 peer-reviewed publications, including several articles in high-impact general and topical journals such as Science, Nature Chemistry, Physical Review Letters, ACS Nano, Angewandte Chemie and Journal of the American Chemical Society. His h-index is 74.

Abstract

Ligand-protected noble metal nanoclusters, commonly termed as "monolayer-protected metal clusters" (MPCs) comprise a common set of structures exhibiting an inorganic core stabilized by an organic layer of ligand molecules. The choice of the metals in the inorganic core defines their physical properties, such as the electronic, optical, and magnetic properties, while the organic ligand shell defines their solubility and functionality with the surrounding environment. MPCs currently provoke widespread fundamental interest as tunable nanomaterials since they can be engineered, in principle, with atomic precision. In this talk, we discuss the unique features of MPCs, making them an ideal nanomaterial to be exploited for applications in different fields such as catalysis and various biological applications such as bioimaging, sensing, and targeted drug delivery. We emphasize how understanding these atomically precise nanomaterials requires a tight connection between computational modeling and experimental characterization, opening a unique possibility for their iterative functionalization and tuning for applications.

Panelist

Prof. Hui Pan
University of Macau
Macau, China

Zoom meeting details will be shared with the registered participants

Convener:
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