

## **About Hua Zhang's work**

Though Zhang began his career in chemistry, his research has become highly interdisciplinary. His work focuses on phase engineering of nanomaterials (PEN). His research interests encompass the development of unconventional-phase ultrathin two-dimensional nanomaterials, novel metallic and semiconducting nanomaterials, novel amorphous nanomaterials, and their hybrid composites for various applications, such as catalysis, clean energy, (opto-)electronic devices, chemical and biosensors, and water remediation.

Zhang's current research addresses a fundamental challenge in nanomaterial science: controlling the crystal phases of noble metal/semiconductor heterostructures. These hybrid materials are essential for catalysis, optoelectronics, and solar energy applications, where precise crystal phase manipulation is crucial for optimising their performance.

To tackle this challenge, Zhang has developed a novel wet-chemical synthesis approach that combines amorphous noble metals with crystalline semiconductors to create heterostructures. These structures show enhanced photocatalytic properties, particularly for solar-powered production of high-purity fine chemicals—advancing sustainable chemical manufacturing methods.

## **Biography**

Zhang is Director at the Hong Kong Institute for Clean Energy at City University of Hong Kong and also Herman Hu Chair Professor of Nanomaterials at the Department of Chemistry at the same university. He originally took his BSc and MSc in chemistry at Nanjing University, followed by his PhD at Peking University.

He has received numerous awards. In 2015, he was elected an Academician of the Asia Pacific Academy of Materials, and in 2020, he was elected as a Foreign Fellow of the European Academy of Sciences. In 2014 and 2015, he was listed among the “hottest researchers of today” by Thomson Reuters. From 2014 to 2024 (11 consecutive years), he has been listed among the "Highly Cited Researchers" by Clarivate Analytics. His current research is supported by a Croucher Senior Research Fellowship.