

## YOUNG SCIENTIST AWARD 2024

### Lu Jiong

Dean's Chair Associate Professor  
Department of Chemistry  
National University of Singapore

***“For his groundbreaking work in developing next-generation dynamic atomic-precision catalysts that are reshaping the current landscape of sustainable manufacturing processes in the fine chemicals and pharmaceutical industries.”***

Dr Lu is at the forefront of advancing next-generation materials and catalytic technologies, focusing on achieving atomic-level precision and high sustainability. His groundbreaking work promises significant economic and environmental benefits, particularly in transforming manufacturing processes in the fine chemicals and pharmaceuticals industries, with the goal of fostering a more sustainable future.

Current catalysts used in these industries face several challenges, including high production costs, difficulties in separation and reuse, and the risk of harmful metal contamination.

Dr Lu's team has developed novel catalysts that greatly enhance greener and more sustainable chemical manufacturing processes. These advanced catalysts not only achieve significantly higher yields and greater efficiency but also offer a markedly improved environmental impact compared to conventional options. Achieving a carbon footprint and production cost that is 10 times lower than traditional catalysts, these advanced catalysts are highly appealing for industry adoption.

Several patents have been granted arising from these advancements. These breakthroughs have also enabled Dr Lu to lead a Competitive Research Programme (CRP) project funded by the National Research Foundation (NRF) in 2023. Additionally, these works have garnered considerable interest from major pharmaceutical companies, leading to substantial industrial funding and collaboration.

Beyond his research pursuits, Dr Lu is deeply committed to scientific communication and education. He actively engages in local and international science forums, workshops, and outreach programs, during which he shares his research findings and experiences with aspiring science enthusiasts. Dr Lu is also dedicated to nurturing the next generation of researchers by mentoring talented postdoctoral, graduate, and undergraduate students within his group. Under his guidance, several members have received recognition, including best student researcher awards, and have gone on to establish successful careers in many prestigious institutions, emerging as influential leaders in their respective fields.

Dr Lu's contributions to science are reflected in his extensive publication record, with over 130 papers in top-tier scientific journals, including Nature, Nature Nanotechnology, Nature Materials and Nature Chemistry, with a h-index of 55 and over 11,000 citations. Dr Lu has been honoured with several prestigious awards, including the JMCA Emerging Investigators Award in 2019, the National University of Singapore (NUS) Faculty of Science Young Scientist Award in 2021, and the NUS Young Researcher Award in 2022. He also serves as the Associate Editor for Chemistry of Materials, a well-recognised journal published by the American Chemical Society.