YOUNG SCIENTIST AWARDS 2022
PHYSICAL, INFORMATION & ENGINEERING SCIENCES CATEGORY

Dr Koh Ming Joo
President's Assistant Professor, Department of Chemistry, Faculty of Science,
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"For his research in sustainable base metal catalysis and radical-based chemical technologies that revolutionise chemical synthesis"

Dr Koh focuses on the research of sustainable catalysis and radical chemistry by developing reaction technologies derived from abundant and non-precious materials such as base metals. In the field of catalysis to drive chemical synthesis, many systems rely on the use of expensive and scarce precious metals to prepare catalysts, which can only mediate a limited range of reactions. Dr Koh's work has led to the discovery of cheaper, energy-efficient catalysts and reagents that are capable of mediating unprecedented chemical transformations and radical-based reactions. These developments significantly enhance chemical synthesis efficiency and cut synthetic steps, benefiting chemists and companies in their applications.

Dr Koh and his team have leveraged their developed catalyst systems in innovative ways to transform cheap and abundant feedstock chemicals into value-added functional products with less energy consumption, less waste production and lower environmental footprint. This sustainable approach is sensitive to and aligned with critical global concerns, and is expected to revolutionise the way important chemicals are prepared, which will make a difference in many areas such as agriculture, therapeutics and plastic waste upcycling. Dr Koh also co-owns a number of patents, some of which have been licensed by XiMo AG, a Swiss-based company that develops catalysts for use across various chemical sectors.

Dr Koh nurtures the next generation of researchers by grooming talented post-doctoral, graduate and undergraduate students in his group. A number of members have gone on to win best student researcher awards or establish their own independent careers to become successful leaders in their own right.

Beyond research, Dr Koh has a keen interest to promote chemical science as a way of contributing back to society. He participates in local and international science forums as well as outreach programmes to share his research work and experiences with young science enthusiasts, inspiring them to pursue their interests in science.

Dr Koh has published over 50 papers in top-tier scientific journals including Nature, Science and Nature Chemistry, with a h-index of 24 and over 1,700 citations. For his research efforts, he is recognised as a rising chemistry leader by the American Chemical Society's Chemical & Engineering News (C&EN), and the first Singaporean among the Talented 12 cohort to receive the accolade in 2022. He is also a recipient of many prestigious research and teaching awards, including the NUS Inauguration Grant, Asian Core Program Lectureship Award, Excellent Young Teacher Award, TR35 Asia Pacific Award, TCI-SNIC Industry Award in Synthetic Chemistry, and Thieme Chemistry Journals Award.