

YOUNG SCIENTIST AWARD 2023

Dr Chang Guoqing

Assistant Professor, School of Physical & Mathematical Sciences
National Technological University (NTU)

“For his pioneering and illustrious contributions to the discovery of topological quantum semimetals, giving rise to new research avenues and applications in quantum materials and photonics.”

Dr. Chang Guoqing is a renowned physicist who is at the forefront of the intriguing world of quantum materials. Besides being deeply committed to uncovering the underlying fundamental physics of quantum materials, Dr. Chang also orchestrates a comprehensive database of materials. His cutting-edge computational techniques enabled him to make powerful predictions of many new next-generation quantum materials.

Imagine materials so unique that they could revolutionise our daily gadgets, like making solar panels dramatically more efficient or inventing light sensors with unmatched sensitivity. This is one of the main unique advantages of quantum materials discovered by Dr. Chang. His prediction of colossal and quantized photocurrents in an extensive array of chiral materials has attracted the intensive attention of the international scientific community. Dr. Chang's group recently introduced an innovative methodology capable of amplifying photocurrents exponentially by tuning the structure of quantum materials.

Dr. Chang has made significant efforts to promote collaboration between top experimental groups both locally in Singapore and globally in the world. These close networks established by Dr. Chang have, in turn, helped make his research more impactful. A lot of exciting predictions and theory proposed by Dr. Chang has been successfully realised in the lab in a short time, which paved the way for the next step in industrialisation.

For Dr. Chang, it's not just about high-end research. He's equally passionate about lighting up young minds and has been guiding undergraduate students in the fascinating fields of physics and materials science. Dr. Chang also participates in both local and international science forums frequently, eager to share his findings and ignite curiosity.

Dr. Chang is a recipient of the 2021 National Research Foundation Fellowship. In addition, he has been continuously recognised as a global highly cited researcher by the Web of Science since 2019. To date, Dr. Chang has published over 80 papers in top-tier scientific journals including Science, Nature, Nature Materials, Nature Physics, Nature

Communications, Science Advances, and Physical Review Letters with an H-index standing at an impressive 47 and boasting over 16,000 citations.