

Chien-Chun Chen is an associate professor in the Department of Engineering and System Science, National Tsing Hua University (NTHU). He received his Ph.D. degree in 2013 and has worked with Prof. Jianwei Miao since 2009. He received his B.S. and M.S. degrees from Nation Taiwan University in 2000 and 2003. His research interests are mainly related to X-ray Coherent Diffraction Imaging (CDI) and atomic resolution electron tomography in both theory and experiment. He worked as a research assistant to develop computational methods with Prof. Ting-Kuo Lee in Academia Sinica, Taiwan, from 2003 to 2009. At the same time, he became a visiting scientist and participated in the experimental research in SPring-8, Japan.

Chien-Chun completed his doctoral degree at UCLA with expertise in atomic electron tomography. Advances in recent years report that, with assumptions about the sample structure, Electron tomography can be used to determine the internal structure of nanomaterials at atomic resolutions. He and his colleagues have developed an electron-tomography method that bypassed such assumptions and determined the gold nanoparticle at a 2.4-angstrom resolution, which was the best resolution in the world. This work lets researchers peer 3D structures within nanoparticles. He then combined electron tomography with a filtering method that generated the first images of 3D atomic structures right at the core of dislocations. Most recently, He also participated in the work of determining 3D coordinates and elements of atoms with a single nanoparticle.

Chien-Chun's experience is not only in Electron Tomography but also in X-ray Diffraction Microscopy. During five years research assistant in the Institute of Physics, Academia Sinica, and four years at UCLA, he constantly explored the development of algorithms to solve the phase retrieval problem in the field of Diffraction Tomography. A lot of works related to the 3D reconstruction from limited 2D diffraction patterns have been published in Physical Review series journals. In particular, Chien-Chun worked on a reconstruction method associated with a novel 3D imaging technique, named Ankylography (derived from the Greek words *ankylos* meaning curved and *graphein* meaning writing), which allows scientists obtain 3D structure from a single 2D diffraction pattern.

Associate Professor (2021 – present)

Department of Engineering and System Science, National Tsing Hua University

Assistant Professor (2019 – 2021)

Department of Engineering and System Science, National Tsing Hua University

Assistant Research Fellow (joint appointment) (2016 - 2020)
Instrument Technology Research Center, National Applied Research Laboratories

Assistant Research Fellow (joint appointment) (2017 - 2021)
National Synchrotron Radiation Research Center

Assistant Professor (2014 - 2019)
Department of Physics, National Sun Yat-sen University

Ph.D., Physics, University of California, Los Angeles (2009 - 2013)
M.S., Physics, National Taiwan University (2000 - 2003)
B.S., Physics, National Taiwan University (1996 - 2000)