Jianwei (John) Miao is a Professor of Physics & Astronomy and California NanoSystems Institute at UCLA. He received a Ph. D. in Physics, an M.S. in computer science, and an Advanced Graduate Certificate in Biomedical Engineering from State University of New York at Stony Brook in 1999. After graduation, he became a Staff Scientist at the SLAC National Accelerator Laboratory, Stanford University. In 2004, he moved to UCLA as an Assistant Professor and was promoted to Full Professor in 2009. Miao is an internationally renowned pioneer in the development of novel imaging methods with X-rays and electrons, and has contributed to theory, computation, and experiment. He theoretically explained under what conditions the phase problem of non-crystalline specimens can be solved in 1998. A year later, he performed the seminal experiment of extending X-ray crystallography to allow structural determination of non-crystalline specimens, which is known as coherent diffractive imaging (CDI), lensless or computational microscopy. CDI methods such as ptychography and Bragg CDI have been broadly implemented using synchrotron radiation, X-ray free electron lasers (XFELs), high harmonic generation, electron and light microscopy. It has also become one of the major justifications for the construction of XFELs worldwide. In 2015, Miao and collaborators published an authoritative review on CDI in Science.

Another important field that Miao has pioneered is atomic electron tomography (AET). In 2012, he demonstrated electron tomography at 2.4 Å resolution for the first time without assuming crystallinity or using averaging. He then applied AET to image the 3D core structure of edge and screw dislocations at atomic resolution and to determine the 3D coordinates of thousands of individual atoms in a material with a 3D precision of 19 pm, which addressed Richard Feynman's 1959 challenge. In 2017, Miao measured the 3D coordinates of more than 23,000 atoms in an FePt nanoparticle, and correlated chemical order/disorder and crystal defects with material properties at the single-atom level. In 2019, he captured atomic motion in 4D for the first time and applied it to observe crystal nucleation at atomic resolution. His experimental observations contradict classical nucleation theory, showing a theory beyond classical nucleation theory is needed to describe nucleation at the atomic scale. More recently, Miao solved a century-old problem by determining the 3D atomic structure of an amorphous solid for the first time. This work is expected to pave the way for the determination of the 3D atomic structure of a wide range of amorphous solids, whose impact on non-crystalline solids may be comparable to the first 3D crystal structure solved by X-ray crystallography over a century ago.

Miao is the Deputy Director of the STROBE National Science Foundation Science and Technology Center, an Associate Editor for *Science Advances*, and *Crystallography Reviews*. His honors and awards include the Werner Meyer-Ilse Memorial Award (1999), an Alfred P. Sloan Research Fellowship (2006-2008), the Outstanding Teacher of the Year Award in the Department of Physics & Astronomy at UCLA (2006-2007), a Kavli Frontiers Fellowship (2010), a Theodore von Kármán Fellowship from the RWTH Aachen University in Germany (2013), the Microscopy Today Innovation Award (2013), a University of Strasbourg Institute for Advanced Study Fellowship (2015-2017), a Fellow of the American Physical Society (2016), an NSF Creativity Award (2018), and the Innovation in Materials Characterization Award from the Materials Research Society (2021). He has been a Guest Scientist of the Institute of Physical and Chemical Research (RIKEN) in Japan since 2004.