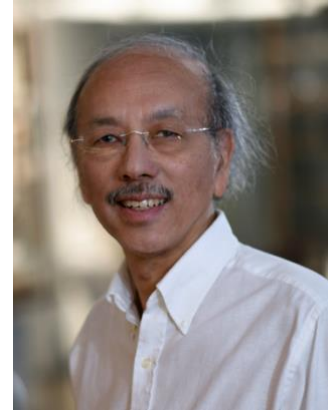


Cryogenic electron microscopy for protein machines and RNA



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Abstract

Single particle cryogenic electron microscopy (cryo-EM) is a mature methodology for routine structure determination with detailed features equivalent to those obtained by X-ray crystallography at comparable resolutions. There are now more than 4,000 cryo-EM structures better than 4 Å resolution deposited to the protein databank. Cryo-EM has the resolving power to visualize atomic details of biomolecules, derive biochemical mechanisms and be useful therapeutics developments. Examples will be presented to demonstrate these advances.

Biography

Wah Chiu is a Hong Kong-born American biophysicist, currently the Wallenberg-Bienenstock Chair Professor in the Department of Bioengineering, Department of Microbiology and Immunology and the Photon Science Directorate of SLAC National Accelerator Laboratory at Stanford University. He is a Stanford Bio-X affiliated Faculty. He was formerly the Distinguished Service Professor and the Alvin Romansky Chair Professor at Baylor College of Medicine where he was the founding director of the National Center for Biomolecular Imaging and has been active in the new cryo-EM techniques allowing much higher-resolution structures of large molecular complexes such as viruses and chaperonin. He has published hundreds of papers as correspondence author in high impact journals (IF>10), including *Nature*, *Nat Med*, *Nat Commun*, *Nat Methods*, *Nat Protoc*, *Nat Struct Mol Biol*, *Science*, *Sci Adv*, *Cell*, *Cell Host Microbe*, *Cell Res*, *J Am Chem. Soc*, *Nucleic Acids Res*. All his SCI papers have been cited more than 30000 times by research peers (H-index = 98). He was awarded by the American Crystallographic Association for M.J. Buerger Award in 2021, the Microscopy Society of America for Distinguished Scientist Award for the Biological Sciences in 2014, the Baylor College of Medicine for Barbara and Corbin J. Robertson Jr. Presidential Award for Excellence in Education in 2015. He is an elected member of the United States National Academy of Sciences and the Academia Sinica in Taiwan.