

Joint BME – CHEM Distinguished Lecture 2026

Single-molecule chemistry: from nanoscale catalysis to bacterial extracellular ET

Prof. Peng Chen

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Hosted by Prof. FU Bing



FRIDAY

10 July 2026



TIME

15:00



VENUE

LT-10, 4/F Yeung Kin Man Academic Building

ABSTRACT

This presentation will have two parts on using microscopy approaches to study fundamental chemical and biological processes. In part 1, I will first give a brief introduction to the single-molecule fluorescence approaches to image catalytic reactions on single nanoparticles at single-turnover and super-optical resolution. I will present applications of such approaches in gaining insights into the spatiotemporal reactivity patterns on single catalyst particle in (photo)(electro)catalysis, including the development of new approaches for super-resolution imaging of nonfluorescent processes on surfaces. In part 2, I will present our work in using multi-modal imaging methods to study how membrane electron transfer proteins spatially reorganize and form biomolecular condensates to mediate extracellular electron transfer in bacteria.

BIOGRAPHY

Peng Chen is the Peter Debye Professor of Chemistry at Cornell University. He did his B.S. at Nanjing University, Ph.D. at Stanford University, and postdoc at Harvard University. His group pioneered the study of single-nanoparticle catalysis, electrocatalysis, and photoelectrocatalysis; of living polymerizations by single molecular catalysts; and of biological inorganic systems in vitro and in living cells; using single-molecule/particle imaging and manipulation methods. His current research interests are heterogeneous and homogeneous catalysis, bacterial metal homeostasis, and bioenergy conversion. He is a Member of American Academy of Arts and Sciences and a Fellow of American Association for the Advancement of Science. He has received many national and international awards and given many named, plenary, and keynote lectures. He is an Associate Editor for the ACS journal Chemical & Biomedical Imaging.

Key references

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