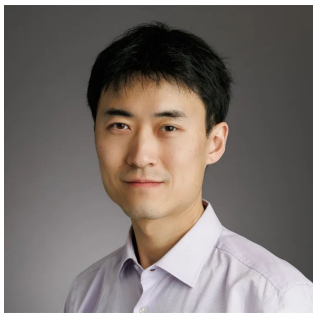
香港大學 機械工程系
Department of Mechanical Engineering
THE UNIVERSITY OF HONG KONG

SEMINAR

Tracking and making use of heat in two-dimensional metal halide perovskites



Date: 15 January, 2026 (Thursday)
Time: 11:00 a.m.
Venue: Room 7-34 & 7-35
Haking Wong Building
HKU

Speaker: Prof. Peijun Guo
Department of Chemical and Environmental Engineering
Yale University
U.S.A.

Abstract:
Two-dimensional metal halide perovskites (2D-MHPs) are chemically and structurally diverse semiconducting materials with promising applications in photovoltaics and optoelectronics. The understanding of charge and heat transport is crucial for improving the performance and stability of devices made from these materials. I will discuss our recent efforts on developing time-resolved optical spectroscopy and imaging techniques for characterizing the anisotropic flow of heat in these hierarchically architectured materials. I will then demonstrate how we might turn the generally poor thermal transport property of these materials into a desirable characteristic, where we employ these materials for thermal-type photodetectors of long-wavelength light. If time permits, I will also present our efforts on the understanding of phase transitions in 2D-MHPs at their intrinsic time and length scales.

Biography:
Peijun Guo received his B.S. from Tsinghua University with highest honors in 2009, and his M.S. and Ph.D. from Northwestern University in 2011 and 2016, respectively, all in materials science and engineering. After spending three years at Argonne National Lab as an Enrico Fermi Named Postdoc Fellow, Peijun joined the Department of Chemical and Environmental Engineering at Yale University in year 2020, with his lab hosted under the Energy Sciences Institute on Yale's west campus. The Guo group develops and employs optical spectroscopy and microscopy to understand the structure-property relationships in emerging soft semiconductors. His lab is also interested in finding new applications of these emerging, solution-processable materials by tailoring light-matter interactions at the nanoscale.

ALL INTERESTED ARE WELCOME

For further information, please contact Prof. Y. Lu at 3910 2155.