



Department of
Mechanical Engineering
The University of Hong Kong



SEMINAR

Dynamic control of solar and infrared radiation for thermal management applications

Date: 8 May, 2024 (Wednesday)
Time: 2:00 p.m.
Venue: Room 7-34, Haking Wong Building
HKU

Speaker: Professor Dongliang Zhao
Professor of Energy and Environment
Southeast University
China



Abstract:

Radiative thermal management is the process by which an object gains or loses heat by absorbing or emitting thermal radiation. Radiative thermal management should be controlled to offer the appropriate working mode in accordance to the need. In this talk, dynamic control methods are classified into passive and active approaches according to different sources of external response. I will provide comprehensive analysis of the principles, structures, optical modulation, thermal performance, and energy-saving potentials of our recent efforts on different dynamic control methods. It should be noted that combining high-performance and low-cost radiative cooling/solar absorbing materials with active mechanical modulation devices is the most readily available and promising approach for dynamic radiative thermal management applications. Furthermore, improvements in low-cost manufacturing are usually overlooked compared with the optimization of optical properties.

Biography:

Dongliang Zhao is a Professor at the School of Energy and Environment, and deputy director of the Institute of Science and Technology for Carbon Neutrality, Southeast University. Prof. Zhao obtained his Ph.D. degree from the University of Wyoming in 2014. His research interests include radiative cooling, thermoelectric cooling, and personal thermal management. With funding from the National Natural Science Foundation of China, he has published more than 70 journal papers including Science, Science Advances, Joule, and etc., with a total citation over 7400 (h-index 32) according to Google Scholar. He regularly serves as a referee or a panelist for about 50 prestigious academic journals. He was named in the world's top 2% of scientists list in 2022 and 2023.

ALL INTERESTED ARE WELCOME

For further information, please contact Prof. X.B. Yin at 3910 2659.