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

SEMINAR

Characterization and Performance of a Low-Cost, Open Source Condensation Particle Counter (OpenCPC)

Date: 9 February, 2026 (Monday)
Time: 2:00 p.m. to 3:00 p.m.
Venue: HW 7-35 Seminar Room
7/F Haking Wong Building
The University of Hong Kong

Speaker: Dr. Pierre Woo
Technical Manager
A & P Instrument Co., Ltd.
Hong Kong

Abstract:
In this presentation, we introduce an open source condensation particle counter (OpenCPC) for measurements of ultrafine aerosol particles for both laboratory use and ambient monitoring. The OpenCPC uses isopropyl alcohol (2-propanol) as the working fluid. A novel optics design with a focused laser beam measurement technique enables the OpenCPC to be manufactured at a significantly reduced cost. A TSI 3025A CPC is used as the reference measurement for concentration comparison. Ambient measurement data has also been collected to determine the effectiveness of the novel humidity control algorithm of the OpenCPC. An intercomparison with other CPCs shows that the overall performance of the OpenCPC is stable and agrees with others.

Biography:


Dr. Keung S. Woo (Pierre) is a graduate of the Particle Technology Laboratory at the University of Minnesota. He received his B.S., M.S. and Ph.D. in Mechanical Engineering in 1993, 1996 and 2003, respectively. His researches include micro contamination control, nano-particle filtration and atmospheric sampling. His Ph.D. thesis research is on atmospheric aerosol size distribution measurement using a wide-range particle size measuring system (3 nm to 2 μm) that includes a laser particle counter, two differential mobility analyzers and a condensation particle counter. In January 2006, Dr. Woo relocated to Hong Kong and works as a technical manager at A & P Instrument Co., Ltd.., where he develops custom aerosol instruments for Hong Kong and China customers. These instruments include sub-micron monodisperse aerosol generation system, high throughput super-micron monodisperse aerosol generation system, and aerosol generation system for instrument calibration, etc...

ALL INTERESTED ARE WELCOME

For further information, please contact
Dr. C.-H. Liu at 3917 7901 or chliu@hku.hk.