



Department of
Mechanical Engineering
The University of Hong Kong



SEMINAR

Broadband Noise Characteristics of Fans with Different Blades under Identical Working Conditions

Date: 26 April, 2023 (Wednesday)
Time: 10:30 a.m.
Venue: Room 7-34, Haking Wong Building, HKU

Speaker: Mr. XU Tianyu (PhD candidate)
Department of Mechanical Engineering
The University of Hong Kong

Abstract:

Small axis-flow fans are widely used for air cooling and ventilation systems. A common small axis-flow fan has an unshrouded rotor, struts or stator vanes and a round casing. With the increase of pressure loading and the rotating speed, the noise radiated from the blade edges and tip clearance becomes remarkable. The fans used in this work are designed based on isolated-airfoil blade design mode and simple radial equilibrium theory supplemented by three-dimensional flow simulations with steady flow. The noise radiated from the fan can be decomposed to discrete tones and broadband noise, which is mainly due to interaction between blades and struts or stators vanes and turbulence, respectively. Under the working conditions of the same pressure rise and volume flow rate, the noise spectra from different fans are analyzed. The findings are useful for improving the acoustic design of small axis-flow fans.

ALL INTERESTED ARE WELCOME

For further information, please contact Prof. L.X. Huang at 3917 2627.