



## Challenge of Fan Noise Reduction in Home Appliance Design

Jointly organized by the Hong Kong Institute of Acoustics, Department of Mechanical Engineering, PolyU and The Hong Kong Institution of Engineers – Mechanical, Marine, Naval Architecture & Chemical Division

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Venue: Room FJ304, The Hong Kong Polytechnic University

Date and Time: February 2, 2018. 6:30 pm – 8:00 pm (Reception starts at 6:00 pm)

### Abstract

Fan is an indispensable air-moving element for many home appliances such as hair dryer, wall fan, air purifier, humidifier and dehumidifier, etc. Identification and reduction of the noise associated with these products are receiving special attention in industry due to the increasing customer awareness of acoustic comfort and its influence on quality of life. Experimentation and testing of fan noise generation processes are extremely difficult when a fan installed in a home appliance is running. Consequently study of fan noise using numerical approach is receiving more attention in home appliance industry. Among many numerical approaches developed in last decade, the hybrid aeroacoustic simulation methodology gains high popularity for its ease of differentiation noise propagation from flow generation which allows accurate prediction of noise levels at various fan operation requirements. Such capability allows more flexibility in fan configuration design for low noise which together with conventional sound absorption technology provide effective ways for encountering noise reduction challenges. In this seminar, recent application of this approach on reduction of noise generated by fan installed in home appliances will be presented and the challenges and future development trend in this area of investigation will be discussed. As a new insight for home appliance industry, design of fan for air purifier will be described as an illustration of how to optimize fan noise design under contradictory requirements of low noise yet high volume flow rate of the product. Eventually a novel low noise air purifier fan design is proposed.

### Registration

For registration, please fill in and submit the form, on first-come first-served basis, before 5:00 pm on January 29, 2018 at <https://goo.gl/forms/8Ucr8hcvbXZPESvB3>. The seminar is free of charge for HKIOA members, PolyU students and staff, and members of supporting institutions.

Activities Sub-committee of HKIOA