

**DEPARTMENT OF MECHANICAL ENGINEERING****SEMINAR****Online**

Title: Aerosol resuspension by forced and flow-induced surface motions on flexible materials

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Date: 30 April, 2021 (Friday)

Time: 11:00 a.m.

Zoom Link: 1) Link to join the meeting:

<https://hku.zoom.us/j/92459162702?pwd=cENHMuOrM1RRMmlbzN6dE01TEFIQT09>

2) Meeting ID: 924 5916 2702

3) Password: 046020

Abstract:

Aerosol resuspension is a process in which aerosol originally deposited on the surface will be suspended in the air again, which has long been considered as a dominant secondary source of indoor air pollution. Previous theoretical research studies on aerosol resuspension from stationary surfaces may not accurately describe the real phenomenon, as reflected by the opposite findings compared with field measurements. Laboratory studies based on ideal surfaces found that unrealistic vigorous conditions in terms of airflow and force field are required to initiate resuspension, but resuspension does occur in various indoor environments. Indeed, surfaces composed of twisted tufts may easily

become breeding grounds for microorganisms that spread bacteria and viruses through the resuspended aerosols. Addressing this issue properly is crucial to more accurate assessment of risks to occupants. Recent studies have investigated the influence of the airflow generated by human activities, but the possible contribution of induced surface vibration has been overlooked. Particularly, flexible materials oscillate when subjected to airflow and/or an external force, which may lead to the higher resuspension rate found for carpets compared with rigid surfaces. This study aims to reveal the aerosol dynamics during the resuspension process taking into consideration the interaction between the external force, airflow and the flexible structures on surfaces. In this talk, a brief introduction of aerosol resuspension will be given, and some preliminary results will be presented.

ALL INTERESTED ARE WELCOME

For further information, please contact Dr. S.C. Fu at 3910 2154.

Research area: Natural & Built Environment