

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

Title: Triboelectric nanogenerators comprising single-ion conducting network polymers for elucidating charge transfer mechanism

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Time: 11:00 a.m.

Zoom Link: 1) Link to join the meeting:

<https://hku.zoom.us/j/2353155940?pwd=Y0UrZUIVd01wYmtwVzRTWWxXdM9VQT09>

2) Meeting ID: 2353155940

3) Password: 20210428

Abstract:

In the coming era of the internet of things (IoT) and artificial intelligence, the billions of IoT devices connected to the power grid are predicted to require a huge amount of electrical energy. Triboelectric nanogenerators (TENGs) are one of the most promising technologies to address this challenge by adopting the self-powered electronics concept. The TENGs are the devices that convert ubiquitous mechanical stimulation into electric energies based on the coupling effect of triboelectrification and electrostatic induction. However, the fundamental mechanism of triboelectrification is still unclear and controversial, which greatly

hinders the further development of TENGs. As triboelectrification is a complex process affected by many factors including chemical composition, surface morphology, and humidity in the circumstance, the construction of model systems with systematically designed single-ion conducting materials, in which tetrafluorophenyl borate anion nodes are physically anchored while the metal cations are mobile throughout the material, would provide a deeper scientific understanding of triboelectrification by manipulating the ion transfer. In this talk, a brief background of TENGs and current theories of triboelectrification will be introduced. Then, the preliminary results of a series of single-ion conducting polymer frameworks will be presented.

ALL INTERESTED ARE WELCOME

For further information, please contact Dr. D.M. Shin at 3917 8061.

Research area: Energy