



**Seminar Topic:
Nanotoxicology – Is that Room at the Bottom Safe?**

Associate Professor Ng Kee Woei

Abstract

The unique properties of materials at the nanoscale has spawned a rapidly increasing list of nano-enabled products that are currently available commercially. Consequently, engineered nanomaterials (ENMs) are now ubiquitous in our lives. While we enjoy the benefits of nanotechnology, concerns have also been raised over the potential risks of environmental release of ENMs, and the health risks associated to human exposure to ENMs. In response to such concerns, the field of nanotoxicology was born at the turn of the millennium and a myriad of scientific publications followed, which describe an extensive range of potential toxic outcomes from exposure to ENMs. Inhalation of airborne ENMs appears to be of utmost concern, especially in an occupational setting. More recently, ingesting ENMs present in processed foods as additives has also attracted much attention. From the perspective of long term and repeated application, dermal exposure to ENMs through the use of topical products should not be neglected as well. Despite increasing concerns, our understanding of the mechanisms of nanotoxicology is incomplete. Nonetheless, regardless of the hazard, it should be noted that minimizing exposure levels is a prudent approach to reducing nanotoxicological risks. This seminar will provide an overview of the background and developments leading to current understanding of the topic, and describe the areas that our group is working on to help plug the knowledge gaps.

Biography

Associate Professor Ng Kee Woei holds a Master's degree in Mechanical Engineering and a PhD in Medicine. Before joining Nanyang Technological University in 2008, Prof Ng did his postdoctoral training in A*Star and spent time at the Charité Hospital and Humboldt University in Berlin, Germany. Prof Ng is currently the Program Director for the NTU-Harvard School of Public Health Initiative for Sustainable Nanotechnology, and is a Visiting Scientist at the Harvard T.H. Chan School of Public Health. He is also the Deputy Director of the Environmental Chemistry & Materials Centre within the Nanyang Environment and Water Research Institute (NEWRI). In addition, Prof Ng serves as a member of the Technical Committee on Nanotechnology within the Chemical Standards Committee commissioned by Enterprise SG, and as a Subject Expert (Nanotechnology) in the SingHealth Institutional Biosafety Committee.

His research interests revolve around highly interdisciplinary areas of developing and understanding biomaterial and nanomaterial interactions with biological systems. In the area of nanotoxicology, he is interested in understanding nanomaterial transformation and the consequent toxicological implications, especially in the context of gut and dermal exposure. Through understanding of nanomaterial behaviour and interactions, his group targets to develop nanotechnologies that are safe to use for both humans and the environment.

Wednesday, 8 July 2020 || Time: 2:00 pm – 3:00 pm ||

Live streaming link: <https://au.bbcollab.com/guest/5c1d135fc8f04aeb81a7a9bc49bb4523>

Hosted by: Associate Professor Lu Xuehong