Department of
Mechanical Engineering
The University of Hong Kong

DEPARTMENT OF
MECHANICAL ENGINEERING
THE UNIVERSITY OF HONG KONG

SEMINAR

Design of low synthetic complexity materials for organic electronic applications

Date: 21 May, 2024 (Tuesday)
Time: 3:00 p.m.
Venue: Room 7-34/7-35, Haking Wong Building
HKU

Speaker: Professor Martin Heeney
King Abdullah University of Science and Technology (KAUST)
KAUST Solar Centre
Saudi Arabia

Abstract:

The development of organic semiconductors has rapidly progress in recent years, but often active materials now require highly complex, multi-step synthesis, potentially limiting their large-scale implementation. In this talk I will discuss approaches to prepare materials in just one or two steps, allowing the preparation of conjugated polymers of low synthetic complexity which can be readily upscaled. I will highlight how this approach can be used to readily build libraries of conjugated polymers to rapidly identify promising materials for application in photovoltaic (OPV) and organic electrochemical transistor (OECT) devices. I will also discuss approaches to introduce additional functionality via post-polymerisation backbone modification of electron deficient conjugated polymers. The use of such techniques allows for the incorporation of sensitive functionalities, useful for crosslinking and photopatterning, as well as ionic groups, for application in OECTs and device interlayers. Finally, the synthesis of graft polymers and their application and emissive nanoparticles will be discussed.

Biography:

Martin Heeney is a Professor of Chemical Science at King Abdullah University of Science and Technology (KAUST) and Professor of Organic Materials at Imperial College. He is a graduate of the University of East Anglia and received his PhD from the same institution in 1999 under the supervision of Prof. Michael Cook.

Following a postdoctoral position with a start-up company in the area of photodynamic therapy, he joined Merck Chemicals in 2000, eventually becoming project leader for the organic electronics team. He made the move to academia in 2007, joining the Materials Department at Queen Mary University of London as a senior lecturer. In 2009 he moved across London to join the Chemistry Department at Imperial College London. His research interests include the design, synthesis and characterisation of conjugated materials for a variety of applications. He has published over 400 research papers, 5 book chapters and over 100 patents. His work has been cited over 35,000 times and he has an h-index of 99. He has been named five times by Thomson Reuters as a HighlyCited researcher in the field of Materials Science, is a recipient of the RSC Corday-Morgan (2013) medal, the RSC Peter Day (2020) award and the Macro group UK medal (2020).

ALL INTERESTED ARE WELCOME

For further information, please contact Prof. P.C.Y Chow at 3917 7905.