

MSE-Colloquium@NTU

11 November 2020, 10:00 am (Singapore) / 1:00 pm (Melbourne)

Join Zoom Meeting: <https://ntu-sg.zoom.us/j/94820635696>

Meeting ID: 948 2063 5696 Passcode: 111120



Polymer-based Nanomaterials from Supramolecular Processes

Prof Neil Cameron
Monash University

Abstract

Polymer science and engineering have developed to the stage where exquisite nanoscale architectures and hybrids can be created almost at will. In the Cameron group at Monash University, we use synthetic polymer chemistry in combination with a range of production processes at the nano- and microscale, to produce materials for a range of applications, mainly but not exclusively in biomedicine. The presentation will give an overview of research in the Cameron group, before focusing on two systems:

1. Peptide-based materials, including poly(amino acid)s, α/β -peptide hybrids, peptide-polymer hybrids and peptide-functionalised gold nanoparticles.
2. Ultrahigh molecular weight 'megasupramolecules' produced by metal-mediated supramolecular assembly of high molar mass polymer precursors, and their application as mist-reducing agents.

The aim of the presentation is to demonstrate various complex hybrid architectures that can be produced, relatively easily, using the power of modern polymer science and engineering.

Biography

Dr Neil Cameron obtained his BSc and PhD from the University of Strathclyde in Glasgow, United Kingdom. Following two post-doctoral fellowships, he was appointed as a Lecturer or Assistant Professor in the Department of Chemistry at Durham University, United Kingdom, in Oct 1997. He was promoted to Reader or Associate Professor in 2005 and subsequently to Professor in 2008. Dr Cameron relocated to Melbourne as the Monash-Warwick Alliance Professor of Polymer Materials, based in Monash University, in 2014. He became the Head of the Department of Materials Science & Engineering at Monash University in 2019. His research has led to more than 160 papers in publications and more than 160 invited lectures at conferences and colloquia. Dr Cameron received the DTI SMART Award in 2001, the Macro Group UK Young Researcher's Medal in 2003, the ICI Strategic Fund Award in 2004 and the Durham University Christopherson/Knott Fellowship in 2008. He was one of the team members to win the RSC's Rita and John Cornforth award in 2011. Dr Cameron has served on the Scientific Advisory Boards of the Centres of Excellence and companies, major international conferences such as the European Biomaterials Congress. He sits on the Editorial Advisory Board of the journal *Polymer* since 2011 and the Editorial Board of the journal *Polymer Chemistry* between 2009 and 2013. Dr Cameron was Chairman of the Macro Group UK from 2013 to 2016.

Dr Cameron's research is focused on the preparation of novel polymeric materials, with particular emphasis on scaffolds for 3D *in vitro* cell culture and tissue engineering, self-assembling polypeptides, peptide-synthetic polymer hybrids, sugar-containing polymers (glycopolymers), and supramolecular polymers.