School of Materials Science and Engineering

**Seminar Topic:**
Tethered Bilayer Lipid Membranes: From Structure to Function

**Associate Professor Ingo Köper**
Flinders Institute for Nanoscale Science and Technology
College for Science and Engineering
Flinders University, Adelaide

**Abstract**

Tethered bilayer lipid membranes (tBLMs) are solid supported lipid bilayers, with the inner leaflet covalently attached to a solid support. They have been shown to provide a robust model platform with a high electrical impedance, which allows for the systematic investigation of a range of membrane related processes. For example, the influence of small molecules, drugs and nanoparticles on the membrane integrity can be probed. Similarly, tBLMs can be used to host membrane proteins in a functional form.

The detailed molecular structure of the tBLM assembly directly affects the properties of the resulting membrane. Here, the interplay between molecular structure, as mainly probed by neutron scattering techniques and the electrochemical membrane properties, as measured by impedance spectroscopy, will be discussed. The effect on the functionality of the membrane, the ability to incorporate proteins and the relationship between membrane density and degree of interaction with small molecules will be shown.

**Biography**

Dr Ingo Köper studied chemistry at the University of Dortmund and at the university of Bordeaux, France. In 2002 he received his PhD from the University of Paris VI for his work on neutron scattering experiments on the interactions between a sugar and a protein at the Laboratoire Léon Brillouin, CEA-Saclay. In 2002 he joined the Materials Science Department at the Max Planck Institute for Polymer Research, Mainz, Germany. After one year as a post-doc, he became a project leader, leading an independent research team working on biofunctional surfaces, ion channels and single-channel recordings. In September 2009, he followed a call to become lecturer in the School of Chemical and Physical Sciences at Flinders University. Next to his research in biophysical chemistry and nanotechnology, he is involved in the teaching and learning innovations, in addition to a role as teaching program director for physics and molecular sciences.

**Tuesday, 11 December 2018**
**Time: 2:00 pm – 3:00 pm**
**Venue: MSE Meeting Room (N4.1-01-28)**
**Hosted by: Associate Professor Joachim Loo**