MQ Photonics Research Centre Webinars



When: Wednesday 28 October 2020 at 2 PM (Australia, Sydney local time zone) MPR and via Zoom: Please Join from a PC, Mac, iPad, iPhone or Android device: Please click this URL to start or join: https://macquarie.zoom.us/j/638365482 Join from dial-in phone line: Dial: +61 2 8015 2088 Meeting ID: 638 365 482

Title: Revitalising old spectroscopies for new applications: Infrared spectroscopy for protein structure and fluorescence detected linear dichroism for membrane systems

When does a chemist need a physicist?



Abstract: Structure, function and spectroscopy are intimately linked. However, once one has collected a nice spectrum it is not always obvious what it means for the structure and function of a biomolecular system. Conversely, sometimes the interpretation is available and data collection is the stumbling block. In this seminar two areas will be discussed:

- Infrared absorbance spectroscopy, which is increasingly being used to probe the secondary structure of proteins, especially for high concentration samples and biopharmaceuticals in complex formulation vehicles.

- Fluorescence detected linear dichroism spectroscopy collected in a commercial instrument will be presented. We will discuss the current brick wall being faced in applying this to liposomal membrane systems.

Bio: Alison Rodger moved to Macquarie in 2017 after over 20 years at the University of Warwick. Her research focuses on understanding the structure and function of biomacromolecules and their assemblies. Her particular expertise is with spectroscopic biophysical methods particularly circular dichroism and linear dichroism in the UV, visible and infra red regions of the spectrum for use with nucleic acids, proteins, lipids, and carbohydrates. She designs and applies new techniques to understand how biomolecules interact. She is currently working to understanding molecular aspects of bacterial cell-division and to develop and apply Raman Linear Difference Spectroscopy which she invented and various forms of infra-red spectroscopy. At Macquarie she is establishing an open access biophysical spectroscopy laboratory for collaborators and commercial users. Alison received her BSc, PhD and DSc from Sydney University, her MA from Oxford, a DSc from Warwick, and her BA from Chester. She was a Beatrice Dale Fellow at Newnham College Cambridge for three years from 1985 while also an Overseas Scholar of the Royal Commission for the Exhibition of 1851. Alison then spent six years in Oxford as Unilever Fellow at St Catherine's College and Violette and Samuel Glasstone Fellow at St Hilda's. At that time she set up the first Couette flow linear dichroism facilities in the UK and began her programme of analytical science method development for biomacromolecules.