

GTR and RCMS Seminar

"Surface Enhanced Raman Spectroscopy to probe the response of advanced tissue models to therapy"



Prof. Colin Campbell

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Date	January 22 (Thu), 2026
Time	16:00 - 17:30
Place	Lecture room 2F, Noyori Materials Science Laboratory

Studies of human diseases are increasingly moving away from reliance on animal experiments. This is driven by both ethical concerns and the fact that animal models are often poor mimics of human conditions. In vitro tissue models are becoming increasingly complex – often requiring 3D culture and patient derived cell cultures and it can be challenging to make real-time measurements of their physiology. Our work focusses on using Surface Enhanced Raman Spectroscopy (SERS) to report on the response of modern in-vitro tissue models to therapy. SERS is a highly sensitive variant of Raman spectroscopy that uses a noble metal surface to enhance the intensity of the Raman spectrum by around a million times. We have generated new materials that are SERS active and can be either incorporated in 3D cell cultures or used as a substrate on which to grow tissue models. This has allowed us to develop models of diseases such as cystic fibrosis and cancer, with in-built sensing capability, and to measure their responses to therapies.

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