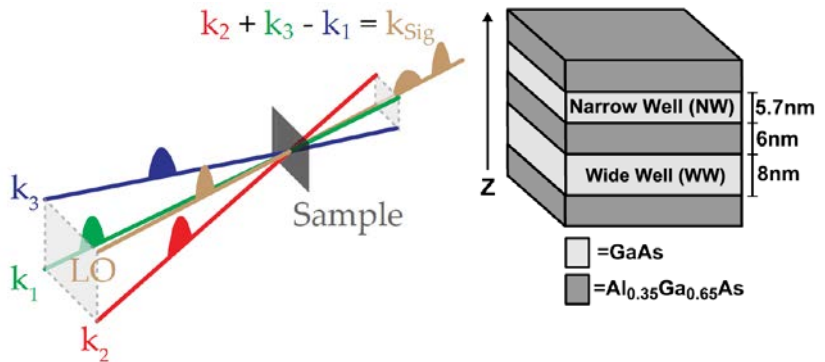


# Physics/Materials Chemistry Seminar



Prof. Jeffrey A. Davis

Centre for Quantum and Optical Science  
Swinburne University of Technology



Friday, October 13<sup>th</sup>, 11:00 AM

Chamberlin Hall (Physics), Rm 5317

## Revealing Interactions in Complex Systems with Coherent Multi-Dimensional Spectroscopy

Multidimensional coherent spectroscopies are designed to identify and quantify interactions between quasi-particles. The nature of these interactions can vary from simple population transfer or coherent coupling, through to more complex higher-order correlations and many-body effects. The challenge with these measurements is being able to extract the salient information. We have developed methods that selectively probe specific quantum pathways, which allows us to access details of weak interactions that are otherwise hidden in complex systems. In this seminar, I will discuss some of the insights we have been able to gain in a range of sample systems, from photosynthetic light-harvesting complexes, through to coupled semiconductor nanostructures, and high- $T_c$  cuprate superconductors.