

Seminar

Monday 7 November 2011

11.00 am - Room 531

Dr Catha Simpson

University of Auckland

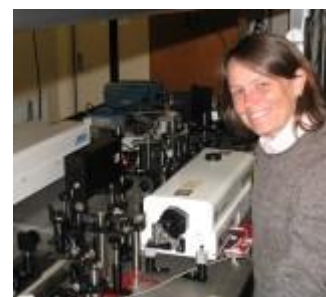
Converting Light to Useful Energy

Last year, the laser had its 50th birthday. This innovation has come a long way from those early days, when it was an exotic new technology looking for an application. In the Photon Factory, a multiuser laser facility at the University of Auckland, we exploit the characteristics of pulsed lasers to further research in physics, chemistry, engineering, biology and medicine. This presentation will focus upon how we explore fast chemical processes using ultrafast time resolved spectroscopy, in an attempt to understand the fundamental mechanisms of how molecules 'decide' what to do with the energy they absorb in the form of light. I will also briefly discuss applications of these laser pulses to advances in micromachining, from the construction of a device to help understand how fish survive in the Antarctic to the generation of nanostructures in metals.

About Cather Simpson

In 2007, Cather Simpson joined The University of Auckland to establish and direct a new multi-user ultrafast laser spectroscopy and microfabrication facility, the Photon Factory. Her appointment is held jointly in Chemistry and Physics. In addition to her research in chemical physics, she lectures in the departments of Chemistry, Physics, and English.

Cather earned a B.A. in Interdisciplinary Studies at the University of Virginia, then a Ph.D. in Medical Sciences at the University of New Mexico School of



Medicine as a Howard Hughes Predoctoral Fellow. During her Ph.D. studies, she became increasingly interested in physics, chemistry and maths, and by the time she graduated, she had switched from studying receptor recycling in immune responses to exploring the fundamental interactions of light with molecules. After a Department of Energy Postdoctoral Fellowship at Sandia National Labs, she joined the academic staff in the Chemistry Department at Case Western Reserve University to pursue research in ultrafast (femtosecond) phenomena in the condensed phase. There, she earned tenure and promotion to Associate Professor and became dedicated to promoting innovation in undergraduate teaching, women in science, ethics in education and research, and in growing postgraduate numbers in her multi-disciplinary field.