

Seminar

Dr Amanda Ellis

Flinders University
Adelaide

Defects induced in carbon nanotubes and novel composite formation using nanotubes as chain transfer agents in RAFT polymerisations

-12.15pm-

-Thursday 9th November 2006-

Host: Flinders University, Adelaide

- Rankine Brown 106, Victoria University of Wellington-

-Video Conference Room, C-Block, IRL, Gracefield Site, Lower Hutt-

-Level-3 lecture theatre (A309), ELEC Dept Building, Canterbury University-

- ScB2.09 (College of Sciences Board Room), Science Tower B. Massey University-

-Conference Room 2, Otago University-

---Abstract---

The discovery of carbon nanotubes has had a profound impact on many areas of science and technology, not least that of composite science. The modification of carbon nanotubes has recently been the focus of much composite research, primarily to improve their solubility, covalent bonding and electrical and thermal conduction in polymer based systems. It is well known that the inertness of nanotubes renders them mostly insoluble in most systems. This talk will consist of two parts. The first part will discuss the second order Raman scattering analysis of defects induced by acid treatment, namely Stone Wales defects and edge-plane defects as observed in the combination mode of the longitudinal optical and longitudinal acoustic modes (LOLA) region of the Stokes Raman spectrum. The second part of the talk will look at the direct covalent functionalisation of carbon nanotubes with polystyrene using the nanotubes as a novel chain transfer agent (CTA) in a Reversible Addition Fragmentation chain Transfer (RAFT) polymerisation. The formation of the CTA and composite are characterised using Raman, TGA, ¹H NMR and conductivity measurements.



The MacDiarmid Institute
for Advanced Materials and Nanotechnology