



GOLD NANORODS CHARACTERIZATION BY ELECTRON MICROSCOPY

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Science Lecture Theatre S2

Interest in gold rod-shaped nanoparticles (nanorods) derives from their unique optical properties, which strongly depend on both the particle size and shape. Many questions remain as to the relationship between the detailed shape and the photoluminescence properties of the nanorods, as well as the growth mechanism controlling their shape. Characterizing the defect structure and the detailed shape at the atomic scale is important for understanding their role in the optical properties of these nanorods. Characterizing the distribution of surfactant is important for understanding its role in the growth mechanism and in the resulting size and shape and hence the properties of the nanorods. This talk will present preliminary results of the characterization of Au nanorods, using electron microscopy techniques. The rods were prepared using seeded growth method by Prof. Mulvaney and Dr Furston at the University of Melbourne. Energy-dispersive X-ray spectroscopy (EDX), selected area diffraction (SAD), convergent beam electron diffraction (CBED), high resolution annular dark field scanning TEM (ADF-STEM) and phase contrast atomic resolution imaging using an analytical JEOL 2100F FEGTEM were used to determine the details of the shape of the Au nanorods, their defect structure and the distribution of surfactant on the surface of the rods.

Visitors are most welcome: Please note the parking arrangements. There is a designated Visitors Car Park (N1) clearly ground-marked by white paint and tickets, at a cost of \$3/day, are available from a dispensing machine. ('Blue' permit designated areas are for Monash members only.). It is also possible to park at other designated Visitors Car Parks (E1, S1 and S2) on the Clayton Campus, but tickets are \$1.4/hour.

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