MONASH University

DEPARTMENT OF MATERIALS ENGINEERING

Seminar

UNLOCKING MECHANICAL PROPERTIES AT THE NANOSCALE IN SITU NANOMECHANICAL TESTING IN ELECTRON MICROSCOPES

Mr. Christian Gow
Coherent Scientific Pty. Ltd.
Australia

5th October 2009, 1:00 p.m. – 2:00 p.m.
Science Lecture Theatre S10

Many modern day processes rely on the properties of new nanomaterials and characterisation of objects at the nanoscale presents a challenge in common bulk material engineering. The need for accurate mechanical testing at the nanoscale on individual objects and highly localised sites is becoming increasingly important to fully characterise the behaviour of these new materials.

The Hysitron PicoIndenter, a new class of nanoindentation instrument, enables the highest sensitivity mechanical testing inside a TEM/SEM environment to probe the limits of single nanoparticle mechanical testing. Utilising the imaging capabilities of the electron microscope, coupled with Hysitron's patented electrostatic force transducer, quantitative force/displacement information can be correlated to the TEM/SEM movie in real time providing new insights into material behaviour at the nanoscale.

The Hysitron PicoIndenter can be used for

- Indentation
- Compression
- Bending

To observe phenomena such as

- Phase transformations
- Dislocation events
- Fracture and failure

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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