



Physics Seminar

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Friday November 21, 2008
PSC 3046
4:00 pm

Proton microscopy: from whale baleens to nanolithography

A proton micro-probe is created by focusing an MeV proton beam down to a spot size of a micron or less. When such a beam is swept over a sample's surface, it becomes a powerful, non-destructive tool for elemental analysis. Characteristic X-rays are generated, allowing 2-d maps to be produced for trace elements having concentrations of a few parts per million. But the proton beam, which suffers very little lateral scattering as it penetrates, can also be used to modify materials. High aspect-ratio structures in semiconductors and various polymers have been created by direct-write methods. This talk will provide an overview of the rich applications for proton micro-probes; from the analysis of da Vinci paintings, to nano-and micro-lithography, to the calcification of micro-tubules in whale baleen

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