



**INDIAN INSTITUTE OF SCIENCE  
BANGALORE-12**

**INSTITUTE COLLOQUIUM**

by

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on

**“The Role of Interfaces in the Strength and  
Ductility of Nanocrystalline Materials”**

Date : Monday, 24th January 2011

Time : 4-00 PM

Venue : Faculty Hall, Main Building

**Professor P. Balaram, Director**  
will preside

*All are cordially invited*

Coffee/Tea: 5:00 pm, Reception Hall

**ABSTRACT**

Polycrystalline materials consist of individual grains separated by grain boundaries. Depending on the temperature and grain size, grain boundaries can lead to either strengthening or weakening of materials. This talk will summarize the evolution in studies and understanding on strength in nanocrystals, focusing on the variability in results reported from many studies at room temperature. Superplasticity refers to the ability of some materials to exhibit large elongations to failure of >500% at elevated temperatures, compared to conventional values of <100%. The presentation will also describe the record superplasticity with an elongation to failure of >5000% obtained recently in an electrodeposited nanocrystalline nickel.