

The Joint *Society of Engineering Science* 50th Annual Technical Meeting and ASME-AMD Annual Summer Meeting (July 28-31, 2013), hosted by School Engineering, Brown University

Symposium in Mechanics of Solids and Structures

### **Nanoindentation and Related Materials Phenomena at Small Scales**

Over the past several decades, the mechanics and materials science communities have witnessed the rapid development and widespread application of small-scale load and depth sensing indentation testing, often referred to as nanoindentation. Nanoindentation has proven invaluable in probing micro- and nano-scale deformation phenomena and has successfully led to many intriguing observations of unique deformation processes that have improved our basic understanding of fundamental deformation mechanisms. One classic example along these lines is the indentation size effect, wherein a dependence of indentation hardness on the indentation depth is observed even when the contact geometry is geometrically self-similar. The utility of nanoindentation techniques for the investigation of materials phenomena at small scales is also in line with a number of national research initiatives such as material behavior at extremes, the materials genome initiative, advanced manufacturing, and many others with significant interest from federal funding agencies and industrial partners.

This symposium will serve as a venue for researchers from academia and industry to exchange ideas and perspectives on nanoindentation. Topics of interests include, but are not limited to, issues in the development of nanoindentation techniques for extracting material properties such as elasticity, plasticity, fracture, and time-dependent behavior; applications of nanoindentation in characterizing small-scale mechanical behavior at extreme conditions such as high temperature; applications involving coupled electro-mechanical responses; investigation of materials problems in novel areas such energy and biological applications; and theoretical and numerical studies that address indentation contact problems.

Since many nanoindentation studies in metallic materials operate on the scales that can now be faithfully studied by discrete dislocation models, abstracts may also be considered jointly by this symposium and the Discrete Dislocation Plasticity symposium (organized by Profs. E. van der Giessen, L. Nicola, and A.A. Benzerga).

Please visit <http://www.brown.edu/Conference/ses2013/> for important dates, abstract submission, and conference registration information.

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