

DEPARTMENT OF

ENGINEERING MECHANICS

COLLEGE OF ENGINEERING

Fall 2010 Seminar Series

Quantitative Nanomechanical Testing in a TEM

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and

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Lawrence Berkeley National Laboratory

*Co-Sponsored by the Nebraska Center for Materials and Nanoscience
and the Department of Engineering Mechanics*

Recent progress in both in situ and ex situ small-scale mechanical testing methods has greatly improved our understanding of mechanical size effects in volumes from a few nanometers to a few microns. Besides the important results related to the effect of size on the strength of small structures, the ability to systematically measure the mechanical properties of small volumes through mechanical probing allows us to test samples that cannot easily be processed in bulk form, such as a specific grain boundary or a single crystal. In the case of individual nanostructures, the need to address the nanostructure in a direct manner is even more acute, and in situ TEM in many cases makes this possible. This talk will describe our recent results from in situ compression and tensile testing of metals to illuminate the origin of size-dependent yield strength behavior. In addition, comparing compression and tensile testing at small scales has led to some interesting observations regarding the evolution of flow strength during testing.

Wednesday, October 6, 2010

3:30 PM

105 Othmer Hall (LOCATION UPDATE)

There will be a reception in W317.1 NH at 3:00 PM, preceding the seminar.
For More Information contact: Dr. Li Tan, 402-472-4018, ltan4@unl.edu

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