Metals Far from Equilibrium –
Bridging the Divide between Experimental and Atomistic-Modeling Scales

Symposium Organizers:
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Experiments and atomistic-modeling techniques describe material behavior from disparate length and time scales. While experiments ultimately best describe the "real world" performance of materials, experimentally probing the effects of subtle changes in composition or microstructure on material behavior can be time-consuming, costly, or even impossible, resulting in significant delays in the implementation of new materials systems. Especially for materials with complex and ill-defined atomic structures, such as metallic glasses or irradiated metals, experimental approaches often lack the resolution to describe the atomic mechanisms responsible for behaviors such as plastic deformation. In contrast, computational approaches to materials design permit the rapid evaluation of the impact of very subtle or local changes in structure on properties, or can be used to fully investigate the response of the same atomic arrangement to multiple stimuli, but are constrained to exceedingly small length and time scales with no clear prescription for higher-level multiscale modeling. This symposium provides a platform to bridge the divide between experimental and atomistic-modeling with focus on metallic systems far from equilibrium by inviting experts in the field that

- push the boundaries on the experimental side towards the small and fast scales of modeling (technique development and application)
- push the boundaries of atomic-scale modeling towards the large and slow scales of experiments (technique development and application), and
- develop procedures to bridge the remaining gap.

Potential list of invited speakers for this symposium (currently unconfirmed):

- Prof. Glenn S. Daehn
  Materials Science & Engineering, Ohio State University, Columbus, OH, USA
  http://www.ecr6.ohio-state.edu/~DAEHN/

- Prof. Gerd Duscher
  Materials Science & Engineering, University of Tennessee, Knoxville, TN, USA
  http://web.utk.edu/~gduscher

- Prof. Katharine M. Flores
  Materials Science & Engineering, Ohio State University, Columbus, OH, USA
  http://www.matsceng.ohio-state.edu/~flores/Group/

- Prof. Graeme Henkelman
  Dept. of Chemistry, University of Texas, Austin, TX, USA
  http://theory.cm.utexas.edu/henkelman/members/graeme.php

- Prof. Mo Li
  Materials Science & Engineering, Georgia Tech, Atlanta, GA, USA
  http://www.mse.gatech.edu/node/1061

- Prof. Emmanuelle Marquis
  Materials Science & Engineering, University of Michigan, Ann Arbor, MI, USA
  http://www.mse.engin.umich.edu/people/faculty/marquis

- Dr. Daniel Miracle
  Materials and Manufacturing Directorate, Air Force Research Laboratory, Dayton, OH, USA
  http://www.af.mil/information/bios/bio.asp?bioID=6489

- Prof. Christopher Schuh
  Materials Science & Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA
  http://schuh.mit.edu/

- Prof. Cynthia Volkert
  Dept. of Physics, Göttingen University, Göttingen, Germany
  http://www.uni-goettingen.de/de/68184.html

- Prof. Wolfgang Windl
  Materials Science & Engineering, Ohio State University, Columbus, OH, USA
  http://www.ecr6.ohio-state.edu/~windl/research/