

Dear Potential Speaker,

We are organizing workshop **Dynamic Phenomena under Extremes** on **Monday, January 24th (arrival) to Friday, January 28th (departure), 2011, Austin, Texas.**

We would like to invite you to give a presentation at the workshop to discuss static and dynamic phenomena at extreme conditions (pressures, temperatures, magnetic field and strain rates) including:

- **Thermomechanical and electromagnetic extremes - bridging the gap between static and shock-wave experiments**
- **Melting at high pressures: static and dynamic experiments vs theory**
- **Material properties and synthesis under static and dynamic thermomechanical and electromagnetic extremes**
- **Material Response: Strength, Rheology and Viscosity**
- **Thermally activated reaction dynamics**
- **Structural changes in solids and liquids – going beyond the static phase diagrams and thermodynamic stability/metastability**
- **Transport properties: viscosity, thermal conductivity, diffusion**
- **Bonds, phonons, electrons, and spin dynamics - in situ measurements**
- **Non-equilibrium recrystallization**

Synopsis (objective): Understanding material properties under extreme conditions such as pressures, temperatures, magnetic field and strain rates is of central importance to a plethora of scientific studies including synthesis of novel materials (with improved properties), energy and defense technologies, reaction chemistry of energetic materials, and environmental and planetary sciences. In spite of numerous technological advances in static techniques during recent years, the experiments required for *in situ* measurements of material properties under extreme pressure-temperature conditions remains challenging. Specifically, the study of physical and chemical phenomena on very short time scales comparable to structural and electronic transitions, thermal transport, atomic diffusion, and fast chemical reactions requires cutting-edge development of novel time-resolved techniques and theoretical models. The workshop will address these pressing issues by bringing together scientists with expertise in various disciplines for in-depth discussions. Topics of interest on the dynamic extreme pressures, temperatures, magnetic field and strain rates for the workshop include but not limited to.

If you plan to attend workshop please let us know if you are going to present a talk or poster (tentative title is needed) or just attend workshop and participate in discussion.

Limited financial support from COMPRES for students and young scientist (less than 35 years old) will be available. Please contact Vitali Prakapenka (prakapenka@cars.uchicago.edu) for details.

We have applied for additional funds and hope to get financial support for most participants.

Please reply with your decision or questions within two weeks by November 30, 2010.

Sincerely,

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Jung-Fu Lin, Local organizer at the University of Texas at Austin, afu@jsg.utexas.edu