

TMS2016

145th Annual Meeting & Exhibition

FEBRUARY 14-18 DOWNTOWN NASHVILLE,
TENNESSEE MUSIC CITY CENTER

Connecting the Global Minerals, Metals, and Materials Community.



Interface-driven Phenomena in Solids: Thermodynamics, Kinetics and Chemistry

The key to developing increasingly complex materials systems in the solid state is a detailed understanding of interfaces. In particular, the significance of internal boundaries and free surfaces increases in technological applications where a reduction of system size or scale of microstructure is desired to optimize properties. This symposium invites researchers to communicate developments in interface-dominated processes in solids and discuss the future of the field.

Topics for this symposium include:

- Thermodynamics and chemistry, i.e., segregation, adsorption, phase transformation, energies
- Kinetics; morphological and re-construction processes, such as grain growth, coarsening, faceting, etc.
- Local interface structure (structure-property relationships)

This symposium seeks to understand, characterize, and predict the above processes with the aid of the following tools:

- Experimental assessment and observation of interface evolution in response to various external stimuli (thermal, stress, electrochemistry, etc.)
- Atomic-scale calculations of local interface structure and associated properties (energy, mobility, etc.)
- Mesoscale modeling and computational thermodynamics of processes driven by interfaces.
- Characterization techniques to probe interfacial properties (atomic structure, chemical composition, etc.) and their relation to material properties at the macroscale.
- Development of processing techniques to obtain and control experimental production of desired interfaces (grain boundary engineering, deformation twinning, etc.)

Organizers include:

Fadi Abdeljawad, Sandia National Laboratories (USA)
Stephen M. Foiles, Sandia National Laboratories (USA)
Timofey Frolov, University of California Berkeley (USA)
Begum Gulsoy, Northwestern University (USA)
Heather Murdoch, U.S. Army Research Lab (USA)

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