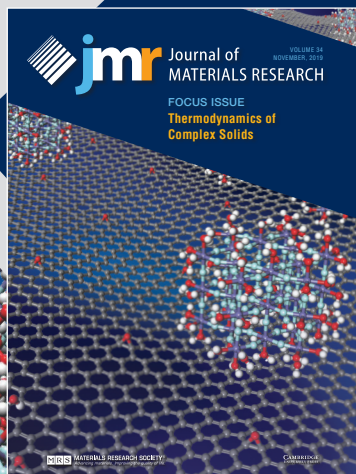




Journal of  
MATERIALS RESEARCH  
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Submission Deadline—April 1, 2019



## Thermodynamics of Complex Solids

Thermodynamics forms the fundamental underpinning of reactivity, transformation, and stability, which places controls on processes such as synthesis, corrosion and degradation, environmental transport, catalysis, and biological reactivity. Rapid developments in industry have resulted in an increasing need to develop and study the properties of improved and new materials, and for better ways to understand a series of phenomena and process failure on a large scale.

Substantial improvements in the range, accuracy, and convenience of thermal analysis equipment, the development of a commercial calorimeter, and the ability to make accurate cryogenic heat capacity measurements, have renewed interest for thermodynamic measurements. Developments in experimental thermochemistry are paralleled by rapid progress in computational methods, integrating calculations based on density functional theory (DFT) and new molecular dynamics simulation methods for characterizing energy and free energy landscapes. There are strategies for coupling DFT results and experimental data within the framework of free energy modeling of phase diagrams and thermochemistry in complex multicomponent systems (e.g., the CalPhaD approach).

This Focus Issue will bring together experimentalists in thermodynamics and their interactions with a wider circle of computational and structural scientists to understand the fundamental science of complex materials, and apply this understanding to a rich variety of scientific and technological problems.

### Manuscripts are solicited in the following areas:

- ◆ Catalysts
- ◆ Functional materials
- ◆ Soft and hybrid materials
- ◆ High temperature refractories
- ◆ Environmental and geological materials

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To be considered for this issue, new and previously unpublished results significant to the development of this field should be presented. The manuscripts must be submitted via the JMR electronic submission system by April 1, 2019. Manuscripts submitted after this deadline will not be considered for the issue due to time constraints on the review process. Please select "Focus issue: Thermodynamics of Complex Solids" as the Focus Issue designation. **Note our manuscript submission minimum length of 3250 words, excluding figures, captions, and references, with at least 6 and no more than 10 figures and tables combined. Review articles may be longer but must be pre-approved by proposal to the Guest Editors via [jmr@mrs.org](mailto:jmr@mrs.org). The proposal form and author instructions may be found at [www.mrs.org/jmr-instructions](http://www.mrs.org/jmr-instructions). All manuscripts will be reviewed in a normal but expedited fashion. Papers submitted by the deadline and subsequently accepted will be published in the Focus Issue. Other manuscripts that are acceptable but cannot be included in the issue will be scheduled for publication in a subsequent issue of JMR.**

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