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TMS 2024
153rd Annual Meeting & Exhibition

MARCH 3—7, 2024
HYATT REGENCY ORLANDO
ORLANDO, FLORIDA, USA
#TMSAnnualMeeting

SUBMIT AN ABSTRACT FOR THE FOLLOWING TMS2024 SYMPOSIUM:

DATA-DRIVEN AND COMPUTATIONAL MATERIALS DESIGN

Computational Thermodynamics and Kinetics

The Computational Thermodynamics and Kinetics (CTK) symposium, held yearly for over 20 years, highlights the latest advances in computational tools and techniques that broaden our understanding of the thermodynamics and kinetics of materials. Advanced CTK methods play an ever-increasing role, not only in bringing new insight in the fundamental behavior of materials across many scales, but also for the conceptual design and discovery of novel materials systems with controlled properties.

This symposium will cover topics related to the stability, synthesis, properties, and discovery of new materials, based on computational methods, including data-based and high-throughput methods, and the integration of computational tools with experiments and processes.

Topics of interest include, but are not limited to:
- Phase prediction, equilibria, stability, transformations, electronic and photonic performance, and nano/micro-structural evolution
- Materials defects physics
- Innovative computational approaches for materials discovery and design
- Alloy design, microstructure control, multi-phase/multi-component systems
- Prediction of materials properties (mechanics, chemistry, electronic, transport, etc.)
- Effect of external and internal fields (mechanical, electric, magnetic, etc.) on the stability, microstructure, and materials properties
- Integration of CTK with experiments and computationally guided synthesis of materials
- Advanced statistical and data-based methods (e.g., machine learning, uncertainty quantification) for CTK.

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