

Connecting the global minerals, metals, and materials community.



Plan Now to Attend:

Phase Transformations and Microstructural Evolution

Phase transformation is still one of the most effective and efficient means to produce desired microstructures in materials for various applications. This symposium is the third in a series of annual TMS symposia focusing on phase transformations and microstructural evolution in materials during processing and in service. It intends to bring together theoretical, experimental and computational experts to assess the current status of theories of phase transformations and microstructure evolution in solid states. In addition to fundamental understanding of the mechanisms underlying phase transformations and microstructure evolution, attention will also be given to the utilization of unique transformation pathways to develop novel microstructures for advanced structural and functional materials.

The topic of choice for this year includes, but is not limited to: New insights into solid-solid phase transformations by coupling atom probe tomography (APT) with other experimental and computational tools. APT is a powerful technique for quantifying atomic scale, local element concentrations at interfaces in thin surface and multilayered films and a wide range of metallic, semiconducting, and hybrid/composite materials. APT, when coupled with information obtained by other powerful characterization techniques such as electron microscopy and spectroscopy, has led to novel insights into the fundamental mechanisms associated with solid-solid phase transformations. While some mechanistic insights have been discussed and recorded in seminal peer-reviewed publications, previously available experimental tools did not usually afford the ability to discern these mechanisms at the atomistic scale. The motivation is to bring together multiple groups of researchers coupling atom probe tomography with other experimental and computational tools to discuss exciting advancements in understanding solid-solid phase transformation mechanisms.

Sponsored by:

- TMS Materials Processing & Manufacturing Division
- Phase Transformations Committee

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