

TMS 2018
147th Annual Meeting & Exhibition**MARCH 11 – 15, 2018**
PHOENIX, ARIZONA**SUBMIT AN ABSTRACT TO:****CHARACTERIZATION****ADVANCED REAL-TIME OPTICAL IMAGING**

Real-time observations can provide important information needed to understand materials behavior, as these techniques can provide valuable insights on mechanisms, free from artifacts induced from conventional experimental techniques. Emerging optical imaging techniques are comparatively inexpensive methods that allow such observations. Methods, such as confocal laser microscopy, can be enhanced with capabilities that enable heating and cooling, controlled atmospheres, and application of stresses and can be used to generate real-time thermodynamic and kinetic data needed to study a variety of materials and processes, such as phase transformation, oxidation, corrosion, etc. In-vivo fluorescence methods can be used to provide essential information on the behavior of biomaterials.

This symposium will encompass a broad range of materials science topics to enable and promote cross-cutting opportunities for multiple disciplines (biomaterials, energy materials, functional materials, structural materials, etc.). Papers are solicited on technique development, as well as on the application of these methods to materials science and engineering.

Topics include:

- In-situ, in-operando, in-vitro, and in-vivo observation techniques, such as confocal laser microscopes, thermal imaging furnace, and other optical techniques
- Confocal techniques, including fluorescence and reflection types, which may be equipped with capabilities such as heating/cooling chambers, gas chambers, mechanical testing, Raman spectroscope, and Fourier transform infrared spectroscopy (FTIR)
- Other optical microscopic or telescopic methods, including hot thermocouple, resistance heating, and sessile drop techniques used for high-temperature phenomena.
- Thermodynamic and kinetic data from these techniques, useful for phase diagram constructions, oxidation/corrosion modeling, phase formation kinetics studies, etc.
- Findings of studies on interrogation of materials by these techniques.

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ABSTRACT DEADLINE IS JULY 1, 2017. SUBMIT ONLINE AT www.programmaster.org/TMS2018.

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