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TMS 2026

155th Annual Meeting & Exhibition

March 15–19, 2026
San Diego Convention Center
and Hilton San Diego Bayfront
San Diego, California, USA
#TMSAnnualMeeting

SUBMIT AN ABSTRACT FOR THE FOLLOWING SYMPOSIUM

MATERIALS SYNTHESIS AND PROCESSING

Measurement & Control of High Temperature Processes

Accurate and reliable measurements are the foundation of well-controlled processes. The high-temperature environments inherent in many industrial operations, including metal smelting and casting, heat treating, and nuclear power generation make measurements challenging due to the instability of electronics at elevated temperatures, increased rates of corrosion and mechanical degradation of instrument materials, and dust formation and infiltration. To effectively measure the conditions in these processes, the instruments and equipment used in these applications must have excellent chemical stability, resistance to thermal shock, and mechanical integrity over a wide range of temperatures. Accurate measurement is necessary but not sufficient for successful high-temperature processes; informed use of these measurements by means of integrated control mechanisms is also critical for maintaining stable and productive operations.

The purpose of this symposium is to provide a forum for members of industry, academia, and national labs to share & discuss advancements in the development and implementation of various measurement techniques used to control high-temperature operations. Submissions that detail recently proven and/or novel measurement techniques for use in aggressive environments (including measurement of temperature, velocity, pressure, chemical composition, or other parameters) as well as process control schemes employed in these environments, with preference given to those tested in industrial operations, are highly encouraged.

Measurement techniques and control schemes for industrial processes of interest include, but are not limited to:

- Metallurgical production/smelting furnaces
- Heat treating furnaces
- Refractory lining systems
- Chemical processing plants
- Casting line operations
- Molten salt electrolysis cells, including Hall-Heroult cells
- Off-gas handling equipment
- Nuclear reactors
- Gas turbines

SPONSORED BY:
TMS Extraction & Processing Division; TMS Process Technology and Modeling Committee; TMS Pyrometallurgy Committee

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QUESTIONS?

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