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**TMS2024**  
153<sup>rd</sup> Annual Meeting & Exhibition

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



**SUBMIT AN ABSTRACT FOR THE FOLLOWING TMS2024 SYMPOSIUM:**

**MATERIALS DEGRADATION AND DEGRADATION BY DESIGN**

**Measurement and 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.

This symposium will focus on exploring:

- proven and/or novel measurement techniques for use in high-temperature environments (including measurement of temperature, velocity, pressure, chemical composition, or other parameters)
- process control schemes employed in these environments, with preference given to those implemented in industrial operations.

The industrial processes of interest include, but are not limited to:

- Metallurgical production furnaces
- Heat treating furnaces
- Casting line operations
- Molten salt electrolysis cells, including Hall-Heroult cells
- Nuclear reactors
- Gas turbines

**ORGANIZERS**

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