

*Connecting the global minerals, metals, and materials community.*



## **Plan Now to Attend:**

### **Nano- and Micro-mechanical Measurements in Harsh Environments**

Most materials are exposed to an environment different than that found in laboratory conditions, and it has been recognized that a material's properties change based on the environment to which it is exposed. Therefore, understanding the mechanisms by which a material's properties change in harsh environments (e.g. high and low temperatures, radiation, high strain rate deformation, and corrosive agents) is key to understanding materials behavior in service conditions.

Nano- and micro-scale material testing has been utilized to understand the basic phenomena of materials degradation and behavior. An obvious next step is to expand these valuable measurements to the environments that materials are exposed to during service conditions in order to study the synergistic effects between harsh environments and materials property degradation on the nano scale. The harsh environments materials experience can have a direct impact on the performance of nano-devices and nano-enabled energy systems for power, defense, and civil applications.

For these reasons, we assert that we need to incorporate the environmental nano- and micro-mechanical measurement of materials, and we propose this symposium to accomplish this end. We are welcoming abstracts on materials evaluated using nano- and micro-mechanical measurements at low or high temperatures, chemical environments (gas, aqueous), radiation or any other harsh environment.

#### **Sponsored by:**

- TMS Structural Materials Division
- Corrosion and Environmental Effects Committee

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