

# FEMS EUROMAT23

03 - 07 Sep 2023 (Frankfurt)

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FEMS EUROMAT is the most important international congress in materials science and technology in Europe. It continues a successful congress series promoting the transfer of knowledge and the exchange of experience between academia and industry. **Submission deadline: 31 January 2023**

Area D: Characterization and Modeling

## D02: In Situ and Operando Studies of Materials Including Time-Resolved, Liquid, Gas, Biasing, Straining

Interrogating the working state of functional materials is a daunting yet fruitful discipline. Understanding structure-activity-property relations allow us to develop novel or better materials with tailored properties for specific applications. Fundamental insight into the working state of materials is also essential for the efficient development of next-generation devices for energy production, storage, and conversion. Consequently, state-of-the-art tools for in situ and operando characterization of materials are currently undergoing rapid development, and the output of experiments using these facilities is gaining considerable traction in both academia and industry.

Recent instrumental and technical developments in the field of electron microscopy have allowed us to investigate materials close to their operating state while maintaining atomic-scale resolution. Likewise, more sophisticated X-ray spectroscopic operando suites are under development for attaining the needed temporal and spatial resolutions, as well as interfacial sensitivity. Stepping up from the study of model systems under simplified conditions, scientists are now attempting to bridge the so-called materials and pressure gaps and stepping towards more realistic real-world materials and operation conditions. This symposium brings together the new developments in the field of operando characterization applied to energy to discuss future directions.

We welcome abstracts on the following:

- Development of novel in situ and operando characterization techniques
- Insights into atomic-scale phenomena
- Structural dynamics of surfaces and interfaces
- Developments of instrumentation for in situ and operando experimentation
- Combined theoretical and experimental studies on interfacial dynamics
- High throughput approaches in data analysis and machine learning

### Symposium Organizer



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