

FEMS EUROMAT23

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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 A: Functional Materials

A03: Characterization of Functional Materials

Functional materials play an essential role in crucial sectors, from energy, the environment, and sustainable processes, to biology and medicine. Optimizing function, however, requires correlating structural, compositional, or electronic properties to performance across length scales. Both synchrotron and electron microscopy are, therefore, vital to improving functional materials. The use of brighter light sources together with faster, more sensitive detectors has vastly increased the speed at which high-quality data can be acquired. This has made possible measurements at truly realistic in situ and operando conditions facilitating structural dynamics studies. Detector improvements are also advancing electron microscopy, enabling high-resolution imaging with greater dose efficiency, sensitivity to light elements, local electromagnetic fields, and charge density. Additionally, higher energy resolution electron energy loss spectroscopy is bringing more significant insights into local electronic structure. Moreover, correlative spectro-microscopy research approaches are developing to fill the gaps between synchrotron and electron microscopy methods. In this rich environment, we welcome contributions highlighting the use and development of advanced techniques to characterize functional materials across the fields of synchrotron and electron microscopy, such as:

- In situ and operando characterization of functional materials
- Materials studies at large-scale X-ray and neutron sources, including synchrotron and free electron laser facilities
- Pushing the boundaries of synchrotron measurements: Combining techniques, high pressure, and high time resolution studies.
- 4D scanning transmission electron microscopy and ptychography
- Electron energy loss spectroscopy
- Correlative spectro-microscopy studies of functional materials.
- Characterization of nanomaterials and low dimensional systems, including thin films, interfaces, and 2D materials

[This is a joint symposium with symposium D11 in area D "Characterization and Modeling"](#)

Symposium Organizer



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