

# EUROMAT 2021

EUROPEAN CONGRESS AND EXHIBITION  
ON ADVANCED MATERIALS AND PROCESSES

WWW.EUROMAT2021.FEMS.EU

12. - 16. SEPTEMBER 2021

GRAZ, AUSTRIA

ASMET

THE AUSTRIAN SOCIETY FOR  
METALLURGY AND MATERIALS

FEMS

FEDERATION OF EUROPEAN  
MATERIALS SOCIETIES

30

1987 - 2017  
www.FEMS.org

## Area A

### Symposium A6

#### **Characterisation of functional materials**

<b>Organizer</b>	<b>Institution</b>	<b>Contact email</b>
Robert Weatherup	University of Oxford	<a href="mailto:robert.weatherup@materials.ox.ac.uk">robert.weatherup@materials.ox.ac.uk</a>
Baran Eren	Weizmann Institute of Science	<a href="mailto:baran.eren@weizmann.ac.il">baran.eren@weizmann.ac.il</a>
Jani Kotakoski	University of Vienna	<a href="mailto:jani.kotakoski@univie.ac.at">jani.kotakoski@univie.ac.at</a>

#### **Abstract**

Emerging sustainable technologies require new and improved functional materials for converting/storing energy, reducing energy usage, and improving recyclability. This includes the active materials used in solar cells, catalysts, batteries, supercapacitors, electronics, photonics, sensing applications, and many more besides. The design of materials to meet this challenge relies on understanding structure-property-performance relationships, with progress underpinned by advances in characterisation techniques. The functionality of these materials can be impacted by operating conditions including temperature, pressure, reaction environment, and the presence of electrical, magnetic fields, or optical stimuli. Therefore, observing materials "at work" is increasingly recognised as critical to optimising performance.

This symposium intends to cover state-of-the-art spectroscopic, microscopic and diffractive characterisation approaches for revealing the chemistry and structure of functional materials that ultimately determines their performance. Of particular interest will be *in situ* and *operando* techniques that reveal how materials evolve in challenging environments, and approaches that combine complementary characterisation techniques to obtain a fuller picture of functional material behaviour.

We welcome abstracts on:

- Materials for energy conversion and storage
- Nanostructured materials for electronic, photonic, and sensing applications
- Structures and processes occurring at surfaces and interfaces
- New instrumentation, methods, and analysis tools
- Development of novel in-situ or operando approaches for studying materials in complex environments (*batteries, fuel cells, high pressure, temperature...*)
- Multi-modal characterisation, including spectro-microscopy approaches
- The use of ambient pressure techniques to study functional materials
- The applications of large-scale X-ray and neutron sources, including synchrotron and free electron laser facilities
- High resolution transmission electron microscopy and related techniques
- Time resolved investigations: from seconds to femtoseconds.
- Theoretical approaches to interpret or extend the understanding of characterisation methods.

# EUROMAT 2021

EUROPEAN CONGRESS AND EXHIBITION  
ON ADVANCED MATERIALS AND PROCESSES

[WWW.EUROMAT2021.FEMS.EU](http://WWW.EUROMAT2021.FEMS.EU)

12. - 16. SEPTEMBER 2021

GRAZ, AUSTRIA

**ASMET**<sup>®</sup>

THE AUSTRIAN SOCIETY FOR  
METALLURGY AND MATERIALS

**FEMS**

FEDERATION OF EUROPEAN  
MATERIALS SOCIETIES

**30**

1987 - 2017  
[www.FEMS.org](http://www.FEMS.org)