

# MSE 2024

24 - 26 Sep 2024 (Darmstadt)

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Topic C: Characterization

## C06: In-situ microstructural analysis of composites and multiphase materials

In-situ analyses are essential to understand microstructural changes of materials under different conditions regarding their processing and target applications. This is especially true for composite materials, since each component can behave differently and the relation between their structure and properties is more complex. Therefore, this symposium aims to bring together experts on the field of in-situ characterization methods for composites and multiphase materials. The focus is on the evaluation of microstructural changes of composites during operando or specific conditions including, but not limited to, under mechanical load, at high/low temperatures, different atmospheres or during chemical or physical reactions. The symposium covers the evaluation of all types of composites based on polymers, metals and ceramics, as well as macroscopic multiphase materials like porous materials. Original presentations about the application of techniques such as computer tomography, microscopy and imaging, X-ray diffraction, acoustic emission, ultra sound and electrical resistance monitoring are welcome. The use of two or more techniques in tandem to overcome the usual problems of each method is encouraged. Since the measured data is normally too big and/or complex to be evaluated by normal data processing techniques, the use of advanced data analysis such as machine learning is of particular interest.

### Symposium Organizer



Prof. Dr. Kurosch Rezwan  
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Dr.-Ing. Renato Saint Martin Almeida  
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