

# NFDI-MatWerk – National Research Data Infrastructure for Materials Science & Engineering

*Friday, 21 April 2023 16:00 (30 minutes)*

The performance of any engineering material depends critically on its strongly heterogeneous and process-dependent microstructure, ranging from crystal defects at the atomic level, through microscale secondary phases up to macroscale pores. Furthermore, processes on timescales ranging from picoseconds up to centuries need to be addressed. This inherent multiscale character of materials needs to be represented in corresponding data models and combined with measurements and simulations that capture these processes.

Due to the vast number of different experimental, computational and analytical methods used to reveal these dependencies, the MatWerk community has developed a large variety of data tools and workflows. NFDI-MatWerk aims to provide a federated digital materials environment that gives scientists full control over their data while enabling and incentivizing data sharing and offering highly performant, complex search queries and analysis runs based on a materials knowledge graph connected to a database infrastructure. Integrated development environments ensure that data processing in workflows follow the same FAIR standards as the data. These concepts will be outlined within the presentation to foster synergies between the consortia.

**Primary authors:** BITZEK, Erik (Max-Planck-Institut für Eisenforschung); HICKEL, Tilmann (Max-Planck-Institut für Eisenforschung)

**Presenter:** HICKEL, Tilmann (Max-Planck-Institut für Eisenforschung)

**Session Classification:** Session VI