

FAIRmat - FAIR Data Infrastructure for Condensed-Matter Physics and the Chemical Physics of Solids: A Proposed Consortium of the German Research-Data Infrastructure

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Scientific data are a significant raw material of the 21st century. Organizing them in a FAIR – Findable, Accessible, Interoperable, and Re-purposable – data infrastructure, will change the way how science is done today. For the wider field of condensed-matter physics and the chemical physics of solids, FAIRmat sets out to make this happen. Integrating synthesis, experiment, theory, computations, and applications, it will substantially further the basic physical sciences, reaching out to chemistry, engineering, industry, and society.

FAIRmat (<https://www.fair-di.eu/fairmat/>) represents a broad and active community of numerous researchers from universities and leading institutions in Germany. It builds on extensive experience with the worldwide biggest data infrastructure in computational materials science, the Novel Materials Discovery (NOMAD) Laboratory [1] and the association FAIR-DI e.V. FAIRmat is fully embedded internationally, e.g., in the Research Data Alliance, the European Open Science Cloud, GO FAIR, etc., and has signed memoranda of understanding with leading institutions worldwide.

The basic organizational principles of FAIRmat are: bottom up; advance basic science of condensed-matter and materials physics; help the active researchers, and don't create burden; lead by example, not by rules.

1) C. Draxl and M. Scheffler, The NOMAD Laboratory: From Data Sharing to Artificial Intelligence. *J. Phys. Mater.* 2, 036001 (2019); DOI: 10.1088/2515-7639/ab13bb; <https://nomad-lab.eu/>

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