

AGI 2: RDM II: Perspectives in Research Data Management (joint session AGI/AKPIK)

Time: Tuesday 13:30–16:30

Location: H1

Invited Talk

AGI 2.1 Tue 13:30 H1

NFDI4Phys research data management for the next decades — ●HANS-GÜNTHER DÖBEREINER — Institut für Biophysik, Universität Bremen

NFDI4Phys.de is applying to become part of the NFDI.de process. We are working towards digital transformation of academia from the viewpoint of physics with an emphasis on disciplinary and transdisciplinary research. For a list of our domains, see <https://nfdi4phys.de/domains/>. Data need to become FAIR (Findable, Accessible, Interoperable, Reusable). We promote FAIR Digital Objects (FDOs). These are, e.g., digital twins of objects in real life with a unique identifier. For a detailed list of our task areas and strategy, see <https://nfdi4phys.de/task-areas/>. We strive to categorise data according to their structure based on the hierarchical emerge of levels in nature, see <https://nfdi4phys.de/emergence/>. This implies building a bridge between natural and social sciences, engineering, and the humanities. Key to these efforts is to develop physics of complex systems further. We need to structure the qualitative by quantifying it with semantic metrics. Generally, the techniques to do so are mainly available, scattered across various disciplines, waiting to be picked up. We need to overcome the complexity barrier in our minds to make progress. Quantum supremacy provided by quantum computing will eventually provide another level of computing power. Finally, faced with tremendous opportunities, we urgently need to develop ethics of information in order to guide us in judging the impact of technology on our society.

Invited Talk

AGI 2.2 Tue 14:00 H1

Semantic Research Data Management in the National Research Data Initiative (NFDI) — ●SÖREN AUER — TIB, Welfengarten 1b, 30167 Hannover, Germany

In this talk, we will give an overview of the concepts and implementation of semantic Research Data Management for the National Research Data Initiative (NFDI). We will introduce vocabularies and ontologies for establishing a common understanding of research data and showcase their use in the context of the NFDI initiatives NFDI4Ing, NFDI4Chem, and NFDI4DataScience. We give an overview of three open technology components, ready to be used: - Terminology service for the collaborative creation of terminologies, vocabularies, and ontologies: <https://service.tib.eu/ts4tib/index> - Open Research Knowledge Graph (ORKG) for organizing scientific contributions in a knowledge graph: <https://www.orkg.org> - Leibniz Data Manager as a meta-data repository for research data: <https://labs.tib.eu/info/projekt/leibniz-data-manager/>

Invited Talk

AGI 2.3 Tue 14:30 H1

NFDI, EOSC, Gaia-X: Three Data Clouds - One Goal? — ●KLAUS TOCHTERMANN — Düsternbrooker Weg 120, 24105 Kiel

Currently, there are three data clouds having an influence on how data management will be shaped in Europe in the future: NFDI, Gaia-X and EOSC. This talk will focus on the synergies of and difference between these three major projects.

The talk will explore how the alignment of these Open Science infrastructures will significantly shape (open) science system of the future. It will shed light on the following questions: Which cooperations are necessary to successfully organise the exchange of scientific resources? How do they complement each other to advance the implementation of the FAIR principles as a whole? Which aspects are crucial for future engagement?

break

Invited Talk

AGI 2.4 Tue 15:30 H1

Research Data Management and Higher Education in Physics — ●JANICE BODE¹ and PHILIPP JAEGER² — ¹Westfälische Wilhelms-Universität Münster, Germany — ²University of Manitoba, Canada and Bergische Universität Wuppertal, Germany

This year, funding has been awarded to three NFDI consortia from the physics community. DPG is involved in all of them, aiming to provide a platform for collaboration and exchange of ideas. As its students organization, jDPG also got involved as well as representatives of the Federal Conference of Physics Student Councils (ZaPF - Zusammenkunft aller deutschsprachigen Physikfachschaften).

If research data management (RDM) is to be promoted throughout the physics community, there is no way around reaching out to physicists in their early stages of education. This should be achieved in close alignment between the consortia and the stakeholders in higher education in physics to avoid redundant work and incompatible developments. To this end, we discuss possible routes towards implementing RDM in the physics curricula at low expenses in terms of both effort and funds.

Topical Talk

AGI 2.5 Tue 16:00 H1

Discussion — ●PHILIPP JÄGER¹, UWE KAHLERT², and TIM RUHE³ — ¹University of Manitoba, Canada and Bergische Universität Wuppertal, Germany — ²RWTH Aachen University — ³Technische Universität Dortmund

In order to provide data obtained in physics experiments to the respective communities and to society as a whole, these data need not only to be stored in a sustainable way, but also be prepared and maintained. Such an effective research data management (RDM) does not only require unified solutions with respect to the anticipated resources, but also common standards across various scientific disciplines. We will discuss current and future initiative of RDM with the speakers of the session.