

Metadata curation use cases in astroparticle physics

Demanding requirements of fundamental physics at large-scale facilities are forcing researchers to use and further develop sophisticated computer science for high-efficient data processing, analysis, curation and preservation. PUNCH4NFDI (Particles, Universe, NuClei and Hadrons for the NFDI) is a consortium of particle, astroparticle, astro-, hadron, and nuclear physics, looking forward to developing advanced techniques and concepts for scientific big data. An important part of these developments represents in-depth studies of best practices of big data access and transfer, as well as adaptation of effective metadata curation strategies.

Prerequisites for development of a user-level metadata schema include a deep knowledge of all the peculiarities of the heterogeneous data supplied to the system from various distributed data sources, as well as a comprehension of the relevant user experiences and the necessary system functionality. Moreover, there is a significant variety in the practices of working with data and research conduction within the consortium. In this regard, study of user scenarios within individual research groups is of particular importance.

In this contribution, a comparative analysis of two metadata curation use cases from the PUNCH4NFDI consortium will be presented. We will consider the experience of two projects in the field of astroparticle physics, KASCADE Cosmic-ray Data Center (KCDC) and German-Russian Astroparticle Data Life Cycle Initiative (GRADLCI) in the context of the aims and requested functionality, chosen data architectures, technical solutions and, especially, metadata management approaches.

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