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## [Meta]data curation in astroparticle physics on KCDC usecase

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Experimental research in astroparticle physics is performed using large scale setups and involves accumulation of big data amounts in long-term time scales. A remarkable example of such experiment is KASCADE (KArlsruhe Shower Core and Array DEtector), which took place from 1996 until 2013 at the location which is now KIT university Campus Nord. Fulfillment of the investigation goals at every stage of the research life cycle required employment of cutting edge technologies from that time period and effective data management approaches. Practices developed by the KASCADE IT support team represent an important example of data curation for the astroparticle physics projects. Nowadays, these solutions are employed at the KCDC (KASCADE Cosmic-ray Data Center) and support both analysis work done by professional researchers and outreach activities for a broader public.

Study of data curation approaches, employed in well-known data centers, such as KCDC, is of big value for modern actively developing projects, such as PUNCH4NFDI (Particles, Universe, NuClei and Hadrons for Nationale Forschungs-Daten Infrastruktur). Collection and analysis of multiple use cases aids to find both common grounds and diversities within established practices for data and metadata handling, which are as relevant for astroparticle physics as for other closely related research fields (particle physics, astronomy to name a few).

In this talk we present an overview of the data and metadata features in KCDC as well as data life cycles and pipelines employed in the system, data storage architecture, software and technologies used for development as well as the functionality of the system.

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### Category

Particle / Astroparticle / Cosmology (Experiment)

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