## **PUNCH4NFDI Annual Meeting 2023**



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Type: Talk

## Reduction of MeerKAT interferometric data in PUNCH4NFDI

Friday 13 October 2023 11:10 (25 minutes)

In this talk I will describe a use case for the PUNCH4NFDI infrastructure which involves synergy among all of its components: computing resources (provided by Compute4PUNCH), storage resources (provided by Storage4PUNCH), workflow management, products' metadata management, and solutions for the reproducibility of scientific analyses. The identified use case is the reduction of MeerKAT interferometric data taken in the new "OTF" mode. Interferometric scanning or "on-the-fly"(OTF) imaging provides a dramatic improvement in data acquisition efficiency by removing the settle-and-slew overhead and by enabling the commensal observing for intensity mapping and interferometric imaging. This new observing mode is currently being tested at MeerKAT in the context of the MeerKLASS survey, which will target an area of 10'000 square degrees with 2500 hours worth of observations. I will briefly describe our semi-automatic pipeline, developed for scalable interferometric OTF imaging, co-adding, source extraction) and generally how these are implemented in an optimized way to deal with a massive amount of data. I will finally report on tests of the deployment of the pipeline to existing and future computing infrastructures, such as those provided by PUNCH4NFDI. Ultimately, our experience suggests that a wide range of astronomy data analysis and processing tasks could also be carried out using the new PUNCH4NFDI infrastructure.

## Type of submission

Talk

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