

pyuvdata: an interface for astronomical interferometric datasets in python

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Software

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Summary

There are several standard formats for astronomical interferometric data, but converting between them in a stable and repeatable way has historically been very challenging. This is partly because of subtle assumptions in the implementations of the formats and the complexity of the mathematical relationships between the different formats (e.g. drift mode vs phased data) and partly because data analysis for individual telescopes typically used just one of the standards along with the associated analysis code. New low frequency instruments (e.g. MWA (<http://www.mwatelescope.org/>), PAPER (<http://eor.berkeley.edu/>), HERA (<http://reionization.org/>)), have required custom analysis and simulation software that rely on a range of different file formats. `pyuvdata` was designed to facilitate interoperability between these instruments and codes by providing high quality, well documented conversion routines as well as an interface to interact with interferometric data and simulations directly in python.

`pyuvdata` currently supports reading and writing `uvfits` (Greisen 2016) and `miriad` (Sault, Teuben, and Wright 1995) files and reading `FHD` (Sullivan et al. 2012) visibility save files.

References

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