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An approximate nonnegative matrix factorization algorithm for the analysis of angular differential imaging (ADI) data

The Angular Differential Imaging (ADI) coupled with the Adaptive Optics (AO) is a powerful technique to improve the contrast in high spatial resolution imaging. In particular, this technique allowed the imaging of exoplanets around a bright object at separation below the arcsec. We present a new technique for the analysis of the ADI data. We aim to introduce Bayesian information on the PSF subtraction algorithm that we use to reduce the ADI data. In brief, we apply an approximate nonnegative matrix factorization to build the modal base we use to expand in series the model of the main star point spread function.

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