Keers, Rosa

Department Sun and Heliosphere

IMPRS Solar System School

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EDUCATION

Degree	Institution	Year
PhD	Max Planck Institute for Solar System Research	2023-2026 (expected)
MSc Astronomy	Leiden University	2021-2023
BSc Physics and Astronomy	Radboud University	2018-2021

PREVIOUS RESEARCH

- 2020-2021: PR[3] Using radio-interferometry on rockets and evaluations of phase stability thereof.
  Supervisor: Drs. Ir. Christiaan Brinkerink
  Worked as part of an ongoing long term student project to demonstrate the feasibility of high-accuracy location reconstruction through radio interferometry, by doing analysis of phase stability using Python.
- 2021-2022: Hunting in the dark: the search for stellar radio emission.
  Supervisor: Dr. Joe Callingham
  Analysed a cumulative 38 years of dynamic spectroscopy of stellar sources from the LOFAR Two-metre Sky Survey (LoTSS). To this end, I developed an algorithm to flag any spectra in the set that contained circularly polarised emission, using the Kolmogorov–Smirnov test. Confirmed the presence of circularly polarised (sub)stellar emission in 63 spectra, from 47 different sources. Of these sources, eight produced emission with time-frequency structure, which was further analysed.
- 2022-2023: Focal-plane wavefront sensing with a vector-vortex coronagraph.
  Supervisor: Dr. David Doelman
  Simulated a Vector-Vortex Coronagraph (VVC) using HCIpy, a framework written in Python for high contrast imaging simulations. The plan is to create an optical system with a VVC that is nearly achromatic within the typical wavelength range used during high-contrast imaging observations and can perform wavefront sensing in the focal plane. This also involved the use of lab work to test the results of the simulations.

SKILLS

- Programming/Software:
  Python, BASH, AMUSE, Conda, DS9, Latex, Linux/OSX Terminal, IRAF
- Analysis/Data processing:
  High contrast Imaging, Dynamic Spectroscopy, Optical Instrument Simulation, Polarimetry, Stellar Evolution Simulations.
- Languages:
  Fluent in Dutch (native) and English (Cambridge level C2 certificate). Passive understanding of French and German. Very good command of Latin and ancient Greek.