Curriculum Vitae Dr. Kristopher Cooper

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I am a researcher at the University of Minnesota who specialises in observations and analysis of, and software development for, multi-messenger high energy emission detected from solar flares.

Education

2018 – 2022 **PhD, University of Glasgow**

Research, funded by The Royal Society, involves solar observation coordination, EUV & X-ray data analysis, and software development primarily in Python. Advisor: Dr Iain Hannah

2013 – 2018 **MSci Physics with Astrophysics (Hons, 1st class), University of Glasgow**

Modules included heliophysics & stellar atmospheres and plasma theory & diagnostics. Final-year project on "Characterising the spatial and temporal evolution of EUV radiation in the flare lower atmosphere" focussing on the solar moss phenomenon. Advisor: Prof. Lyndsay Fletcher

Appointments

2023 – 2026 **Post-doctoral Associate, University of Minnesota**

Research involves X-ray CdTe detector calibration, EUV & X-ray data analysis, and software development primarily in Python in the context of solar X-ray spectroscopic application.

2026 – present **Researcher, University of Minnesota**

Leading analysis efforts from the FOXSI-4 sounding rocket mission, Deputy Project Scientist for the FOXSI-5 sounding rocket, mentoring graduate students, contributing to efforts for the FIERCE MIDEX proposal, software development, as well as a Co-I on a NASA research proposal.

Publications

- Nagasawa, Pantazides, **Cooper** *et al*., "SpaceWire-based data acquisition network for the solar flare sounding rocket experiment FOXSI-4 and FOXSI-5" (2026), *Journal of Astronomical Telescopes, Instruments, and Systems*, 12, 1
- Bajnoková, Hannah, **Cooper** *et al*., "First joint X-ray solar microflare observations with NuSTAR and Solar Orbiter/STIX" (2024), *Monthly Notices of the Royal Astronomical Society*, 533, 3
- **Cooper** *et al*., "Detecting non-thermal emission in a solar microflare using nested sampling" (2024), *Monthly Notices of the Royal Astronomical Society*, 529, 1
- **Cooper** *et al*., "NuSTAR observations of a repeatedly microflaring active region" (2021), *Monthly Notices of the Royal Astronomical Society*, 507, 3
- **Cooper** *et al*., "NuSTAR observation of a minuscule microflare in a solar active region" (2020), *The Astrophysical Journal Letters*, 893, 2

Research Skills

- Proficient in Python and IDL with experience in MATLAB, C++, HTML, and LaTeX
- Version control through Git and Github
- Using HEASoft XSPEC spectral analysis software
- Applying Bayesian methods for data analysis
- Solar observation coordination planning between multiple instruments
- Analysis of different instruments (NuSTAR, SDO/AIA/HMI, Hinode/XRT, SO/STIX)

Selected Conferences & Presentations

- American Geophysical Union (AGU) Meeting, Poster Presentation, December 2025
- Solar Physics High Energy Research (SPHERE) Workshop, Oral Presentation, August 2025
- SPIE Optics and Photonics Meeting, Poster Presentation, August 2025
- American Geophysical Union (AGU) Meeting, Poster Presentation, December 2024
- Solar Physics High Energy Research (SPHERE) Workshop, Oral & Poster Presentation, August 2024
- American Geophysical Union (AGU) Meeting, Poster Presentation, December 2023
- Data, Analysis, and Software in Heliophysics, Poster Presentation, October 2023
- Solar Physics Division (SPD) Meeting, Poster Presentation, August 2023