Stefan M Arseneau

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PRINCIPAL INTERESTS

Stellar astrophysics, observational and experimental cosmology, magnetohydrodynamics, planetary science, big data science and analysis, and bayesian statistics.

ACADEMIC BACKGROUND

B.S. Physics & Mathematics 2020-2024
Johns Hopkins University, Baltimore, Maryland, United States

- Focus areas: stellar astrophysics, experimental cosmology, abstract algebra

EMPLOYMENT HISTORY

Undergraduate Researcher 2022 - Present
Zakamska Laboratory, Baltimore, MD

- Using gravitational redshifts of white dwarf stars in wide binaries with main sequence stars observed by GAIA and the Sloan Digital Sky Survey to constrain the mass-radius relation of white dwarfs.

Undergraduate Researcher 2020 - Present
CLASS Telescope, Baltimore, MD

- Carrying out experiments to determine the efficiency an utility of polyimid aerogel as a filtering material in cosmic microwave background telescopes with Tom Essinger-Hileman (NASA Goddard). This involves working with cryogenics and lab techniques as well as CAD and machining work.
- Performed analyses of signal biases induced by azimuthal telescope motion working in time and frequency domains applying masks and using k-means deep learning algorithms to minimize bias.

PUBLICATIONS

2. Barlis, A., Arseneau, S., Bennett, C.L., Essinger-Hileman, T., Guo, H., Helson, K.R., Marriage, T., Quijada, M.A., Tokarz, A.E., Vivod, S.L. and Wollack, E.J., 2022. Characterization of aerogel scattering filters for astronomical telescopes. arXiv preprint arXiv:2208.04257.
1. Helson, K.R., Arseneau, S., Barlis, A., Bennett, C.L., Essinger-Hileman, T.M., Guo, H., Marriage, T., Quijada, M.A., Tokarz, A.E., Vivod, S.L. and Wollack, E.J., 2022. Novel infrared-blocking aerogel scattering filters and their applications in astrophysical and planetary science. arXiv preprint arXiv:2208.03755.

INDUSTRY EXPERIENCE

Junior Data Scientist 2020
ThruGreen, LLC, Fairfax, Virginia

- Using machine learning techniques with Amazon AWS to optimize traffic flow.

SKILLS

Python, C, SQL, Data Analysis using Juypter
English (Fluent), Mandarin (Intermediate), Spanish (Beginner)