2025-10-02

Curriculum Vitae - Stephen DiKerby

Postdoctoral Research Associate (né Stephen Kerby)
Michigan State University (MSU) dikerbys@msu.edu
Dept. of Physics and Astronomy https://astrokerby.altervista.org

Education

Pennsylvania State University (PSU)

Ph.D. in Astronomy and Astrophysics (2024)

Dissertation: *Multiwavelength Analysis and Classification of Fermi Gamma-Ray Sources: Pulsars, Blazars, and More from the Unassociated List*

M.S. in Astronomy and Astrophysics (2021)

Case Western Reserve University (CWRU)

B.S. in Physics (2019), B.S. in Astronomy (2019)

Professional Timeline

MSU Dept. of Physics and Astronomy

Postdoctoral Research Associate (2024-present)

PSU Dept. of Astronomy and Astrophysics

Graduate Research Assistant (2021-2024)

Graduate Research Fellow (2019-2021)

CWRU Dept. of Physics, Dept. of Astronomy

Undergraduate Research Assistant (2017-2019)

Undergraduate Teaching Assistant (2016)

Argonne National Laboratory

Research Assistant (2017)

Fermi National Accelerator Laboratory

Research Assistant (2013-2016)

Awards & Honors

Zaccheus Daniel Fellowship PSU Dept. of Astronomy & Astrophysics (2022)
Willaman Distinguished Graduate Fellow PSU Eberly College of Science (2019-2020)
Homer F. Braddock Scholarship PSU Eberly College of Science (2019-2020)
Michelson-Morley Scholarship CWRU College of Arts and Sciences (2015-2019)
John Schoff Millis Award CWRU College of Arts and Sciences (2019)
Leslie L. Foldy Prize CWRU Department of Physics (2019)
Polykarp Kusch Prize CWRU Department of Physics (2019)
Richard L. Garwin Prize for Service CWRU Department of Physics (2019)
Albert A. Michelson Prize CWRU Department of Physics (2018)

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Courses & Teaching

ASTRO 6: Stars, Galaxies, and the Universe: PSU Fall 2023 - Primary instructor

An introductory course for non-majors on the qualitative and quantitative practice of astronomy, focusing on stellar and galactic systems. Lab and discussion sections include hands-on data analysis. Taught with Mastery Grading. (3 contact hours/week)

ASTRO 1: The Astronomical Universe: PSU Summer 2022 - Primary instructor

An introductory course for non-majors focusing on the scientific method, observational and theoretical astronomy, and current topics of astronomy and astrophysics research. Taught over an intensive 6-week mini-semester. (10 contact hours/week)

PHYS 121: General Physics - Mechanics: CWRU Fall 2016 - Teaching assistant

Academic Service

MSU Natural Sciences Advisory Committee - PostDoc Representative (2024-present)
MSU Postdoctoral Association Steering Committee - Member at Large (2024-present)
PSU Graduate & Professional Student Association - Delegate (2022)
PSU Astronomy on Tap Organizing Committee (2021-2024)
PSU Dept. of Astronomy and Astrophysics Outreach Committee (2019-2024)
CWRU Dept. of Physics Undergraduate Curriculum Committee (2018-2019)

Mentoring

MSU Dept. of Physics and Astronomy

Mentee: Aleksandr Skorkin (2025-present, undergraduate)
Mentee: Alec Deen (2024-present, undergraduate and graduate student)
Mentee: Grace Sanger-Johnson (2024-present, graduate student)
Mentee: Amiri Walker (2024-present, undergraduate)
Mentee: Ella Werre (2024-2025, undergraduate)
Mentee: Shaan Karim (2024-2025, undergraduate)

PSU Dept. of Astronomy and Astrophysics

Mentee: Kyle Neumann (2023-2024, graduate student)
Mentee: Timothy Emeigh (2022, graduate student)
Mentee: Karthik Yadavalli (2021, graduate student)
Mentee: Natchanun Phonthiptokun (2020, undergraduate)

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Publications in Refereed Journals: Major Contributor or First Author

10. *"Swift-XRT Observations and Upper Limits at Five LHAASO Galactic Sources":* Walker, Werre, Kairim, & **DiKerby** (2025), RNAAS 9 4 89

9. *"Fifteen Years at M31* in X-ray Variability and Flares"* **DiKerby,** Zhang, & Irwin (2025), ApJ 981 1 50

8. *"Discovery of a Pulsar Wind Nebula Candidate Associated with the Galactic PeVatron 1LHAASO J0343+5254u"* **DiKerby**, Zhang, Ergin et al. (2025), ApJ 983 21

7. *"Swift Follow-Up of Reported Radio Pulsars at Fermi 4FGL Unassociated Sources"* **Kerby,** Falcone, & Ray (2023), ApJ 954 1 94

6. *"Testing the Blazar Sequence with Spectra of Newly Discovered Dim Blazars from the Fermi Unassociated Catalog"* **Kerby** & Falcone (2023), ApJ 951 2 133

5. "*Using Neural Networks to Differentiate Newly Discovered BL Lacs and FSRQs among the 4FGL Unassociated Sources Employing Gamma-ray, X-ray, UV/Optical and IR Data*": Kaur, **Kerby,** & Falcone (2022), AJ 943 2 167

4. "*Multiwavelength Spectral Analysis and Neural Network Classification of Counterparts to 4FGL Unassociated Sources":* **Kerby,** Kaur, Falcone et al. (2021), ApJ 923 1 75

3. "*Stellar Gravitational Lens Engineering for Interstellar Communication and Artifact SETI":* **Kerby** & Wright (2021), AJ 162 6 252

2. "*X-Ray Spectra and Multiwavelength Machine Learning Classification for Likely Counterparts to Fermi 3FGL Unassociated Sources":* **Kerby**, Kaur, Falcone et al. (2021), AJ 161 4 154

1. "*On the Prospect of Using the Maximum Circular Velocity of Halos to Encapsulate Assembly Bias in the Galaxy-Halo Connection":* Zehavi, **Kerby,** Contreras et al. (2019), ApJ 887 1 17

Publications in Refereed Journals: Minor Contributor or Collaborator

(plus >12 as member of IceCube collaboration)

5. *"Detection of molecular clouds in the PeVatron candidate source LHAASO J0341+5258 by the Nobeyama 45-m radio telescope"*: Tsuji, Takekawa, Mori, et al. (2025), ApJ 983 1 22

4. *"Catalog and X-ray Spectral Analysis of Counterparts to 4FGL-DR4 Unassociated Gamma-ray Sources"*: Neumann, Falcone, & **DiKerby** (2025), in press

3. *"Broadband multi-wavelength properties of M87 during the 2018 EHT campaign including a very high energy flaring episode":* The Event Horizon Telescope Collaboration (2024), A&A 692 A140

2. *"A Search for Radio Technosignatures at the Solar Gravitational Lens Targeting Alpha Centauri":* Tusay, Huston, Dedrick, **Kerby** et al. (2022), AJ 164 3 116

1. *"Probing the origin of 4FGL J0822.8–4207: cosmic ray illumination from the SNR Puppis A and the Herbig-Haro object HH219"*: Araya, Guti, & **Kerby** (2021), MNRAS 510 2 2277

Conference Proceedings and Presentations

11. *Sub-Bondi Radius SMBH Accretion Monitoring and Spectroscopy with AXIS*, HEAD 22, St. Louis, October 2025

10. *Resolving Fe Kα Doublets for Galactic Center Molecular Clouds with XRISM*, HEAD 22, St. Louis, October 2025

9. *Neutrino Emission from Local Star-Forming Regions,* IceCube Collaboration Meeting, Salt Lake City (remote), October 2025

8. *Local Star-Forming Regions as Neutrino Sources in IceCube*, AAS 246, Anchorage, June 2025

7. *Discovery of a PWN Candidate Associated with 1LHAASO J0343+5242u,* AAS 245, Washington, D.C., January 2025

6. *The X-ray Hunt for Galactic PeVatrons:* AAS 245, Washington, D.C., January 2025

5. *Testing and Extending the Blazar Sequence with Dim Blazars:* AAS 243, New Orleans, January 2024

4. *Extreme Blazars in the Fermi-LAT Unassociated Sources*: MARLAM 10, George Mason University, October 2023

3. *Dim Blazars in the Fermi Unassociated Sources*: MARLAM 9, Baltimore, October 2022

2. *Deciphering Gamma-ray Mysteries with Swift-XRT*: 42nd Central Pennsylvania Consortium Astronomer's Meeting, Gettysburg, April 2022

1. *Stellar Gravitational Lens Engineering for Artifact SETI:* 2021 Assembly of the Order of the Octopus, State College, July 2021

Poster Presentations

6. *The Nature of Blazars in the Fermi-LAT Unassociated Sources:* HEAD 20, Waikōloa, March 2023

5. *New Discoveries and Classifications from Swift-XRT Follow-up at 4FGL Unassociated Sources*: AAS 240, Pasadena, June 2022 (remote due to pandemic)

4. *Counterpart Detection, Spectral Analysis, and ML Classification of 4FGL Unassociated Sources:* HEAD 19, Pittsburgh, March 2022

3. *Counterpart Detection, Spectral Analysis, and ML Classification of 4FGL Unassociated Sources*: AAS 239, Salt Lake City, January 2022 (canceled due to pandemic)

2. *Machine Learning in X-ray Astronomy:* Institute for Foundations of Data Science 2021 Summer School, July 2021

1. V_{max} *as Primary Dark Halo Property:* Case Western Reserve University Senior Thesis Poster Conference, May 2019

Invited Talks

6. *XRISM Spectroscopy of the Galactic Center Molecular Cloud G0.11-0.11*, NASA PhysCOS Early Career Seminar, September 2025

5. *Supermassive Black Holes as Singular Schelling Points:* Bridging Multimessenger Astronomy and SETI @ Ohio State University, June 2025

4. *New Discoveries at Fermi-LAT Unassociated Sources*: HEAD Frontier Seminar Series, March 2025

3. *The X-ray Hunt for Galactic PeVatrons:* University of Michigan Extreme Astrophysics Seminar, October 2024

2. *Pulsars, Blazars, and More from the Fermi Unassociated Sources*: Case Western Reserve University Astronomy Seminar, April 2024

1. *Pulsars, Blazars, and More with Fermi and Swift*: Michigan State University Dept. of Physics and Astronomy Special Seminar, October 2023

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Scientific Collaborations & Professional Memberships

7. NewAthena Community Working Group (2025-present)
6. AXIS Science Working Group - AGN Subgroup (2024-present)
5. SETI Institute Technosignature Science Advisory Group (2024-present)
4. IceCube Collaboration (2024-present)
3. Order of the Octopus (2021-present)
2. Event Horizon Telescope - Multiwavelength Followup Collaboration (2022-present)
1. American Astronomical Society (2021-present) - High Energy Astrophysics Division

Public & Outreach Talks

5. *Dissecting the Drake Equation: The Search for Extraterrestrial Intelligence*: Abrams Planetarium Astronomical Horizons Lecture, October 2024
4. *Surprising Supercharged Science with Swift*: Space Telescope Science Institute Public Lecture Series, December 2022
3. *Blazars of the Fermi-LAT Unassociated Sources*: PSU A&A Tuesday Talk, November 2022
2. *A Multiwavelength Hunt for Pulsars and Blazars*: PSU A&A Tuesday Talk, April 2021
1. *ET Phone Home!: SETI and Exploration with Gravitational Lensing*: PSU Astro on Tap, December 2020

Media Articles & Mentions

6. “Rare gamma-ray flare unleashed from a supermassive black hole”: Eric Ralls, *Earth.com*, 15 Dec 2024
5. “Astronomers uncover explosive mystery as enormous gamma-ray flare erupts from M87’s black hole”: Ryan Whalen, *Debrief*, 16 Dec 2024
4. “Scientists categorize more than hundreds of blazars”: Amit Malewar, *Tech Explorist*, 31 May 2023
3. “100 black hole jets aimed at Earth unleash controversial physics theory”: Robert Lea, *space.com,* 18 May 2023
2. “Testing a theory of supermassive black holes with 100 newly described blazars”: Gail McCormick, *phys.org*, 11 May 2023
1. “Can we use the Sun to find aliens? Scientists propose a relativity trick”: Passant Ravie, *Inverse*, 14 Oct 2021

Awarded Observing Proposals

1. Niel Gehrels *Swift* Observatory: 155ks