

Fe McBride

Multimessenger Astrophysics · Multiwavelength Astronomy

Bowdoin College, Department of Physics and Astronomy, Brunswick, Maine

☎ +1 207-208-2953 | ✉ f.mcbride@bowdoin.edu | 🏠 femcbride.com | 📧 Fe McBride | 🏢 Office: Searles 316A

Employment

Bowdoin College

Brunswick, Maine

Assistant Professor of Physics

July 2022 -- curent

- Multimessenger research projects with undergraduate students starting Summer 2023
- Teaching Introductory Astronomy, Astrophysics and Introductory Physics II

Pennsylvania State University

University Park, Pennsylvania

Eberly Postdoctoral Research Fellow

October 2019 -- June 2022

- AMON multimessenger follow-up program implementation.
- Studying AGN with the Hobby-Eberly Telescope (HET).
- Multiwavelength observations of peculiar blazars.

Advisors: Derek B. Fox, Michael Eracleous and Ana Matković

University of Amsterdam

Amsterdam, the Netherlands

Postdoctoral Researcher

June 2016 -- August 2019

- Organized and led an international symposium on the future of multimessenger follow-up strategies.
- Contributed to the planning of the Cherenkov Telescope Array (CTA) project through the ASTERICS project: developing use cases, and follow-up strategies.

Advisors: David Berge (DESY, Berlin) and Sera Markoff (University of Amsterdam)

NASA/GSFC

Greenbelt, MD, USA

Visiting researcher

Nov 2013 & 2015

- working on various TANAMI AGN projects and Fermi/LAT flare advocate shift duties.

Host: Roopesh Ojha

Education

Dr. Remeis Observatory/ECAP, FAU Erlangen-Nürnberg

Erlangen, Germany

Graduate student

March 2013 -- June 2016

- thesis title ``Extreme Environments: from supermassive black holes to supernovae".
- X-ray and multiwavelength data analysis of blazars and AGN, broadband modeling, X-ray detector simualtions, neutrino calculations.
- Mentoring and teaching duties

Advisors: Joern Wilms, Matthias Kadler

Dr. Remeis Observatory/ECAP, FAU Erlangen-Nürnberg

Erlangen, Germany

Master of Science in physics

August 2010 -- March 2013

- thesis title ``Multiwavelength Observations of TANAMI Sources".

Advisors: Joern Wilms, Matthias Kadler

Dr. Remeis Observatory/ECAP, FAU Erlangen-Nürnberg

Erlangen, Germany

Bachelor of Science in physics

September 2007 -- August 2010

- thesis title ``Swift Observations of TANAMI Counterparts".

Advisors: Joern Wilms, Matthias Kadler

Teaching experience

Bowdoin	PHYS 1140: Introductory Physics II , Enrollment: 27	Spring 2023
Bowdoin	PHYS 2510: Astrophysics , Enrollment: 6	Fall 2022
Bowdoin	PHYS 1510: Introductory Astronomy , Enrollment: ~50	Fall 2022, Spring 2023
PSU	Astro 6: Stars, Galaxies, and the Universe , Enrollment: 90	Spring 2022
PSU	Astro 1: The Astronomical Universe , Enrollment: 200	Fall 2021
PSU	Astro 21: Introduction to Research in Astronomy , Enrollment: 15	Spring 2021
2018	School of Astroparticle physics , Germany; Invited lecture	2018
2016	School on High Energy Astrophysics and Spectroscopy , Kigali, Rwanda; Invited lectures	2016
TA	Dr. Remeis Observatory, ECAP/FAU: Galaxies & Cosmology , Germany	2011 -- 2016

Advising and mentorship

Bowdoin: Student Projects

Bowdoin College

Current projects

2023 -- current

- working with undergrads Wilder M. Harwood '24, Nur Schettino '24, and Liz Perot '26 (Summer 2023)

Penn State University: Advising 3 undergraduate students and 1 graduate project

Penn State University

Previous projects

2020 -- 2022

- working with undergrads Chase Owen, Grant Temple, and Nicholas Craft (until April 2021)
- working with grad student Andrew Pellegrino

University of Amsterdam: co-advising a graduate and two master's project

University of Amsterdam

Previous projects

Jun. 2016 -- 2020

- Co-advising PhD student Matteo Lucchini and Master's projects of Maria Cosette Molijn (UvA) and Jean Damascène Mbarubucye (Mbara University)

Dr Remeis Observatory

Erlangen, Germany

Summer REU advising

2014 -- 2015

- Advising international summer students funded through DAAD RISE program
- Kunal Deoskar (IIT Kharagpur), Alyssa McElroy (West Texas A&M), Claire Baxter (University of Edinburgh), Bingjie Wang (University of Pittsburgh)

Dr Remeis Observatory

Erlangen, Germany

Previous projects

2013 -- 2016

- Advising Clara Deifel, high school student; project: Gamma-ray bursts with *Swift*/UVOT; project won first place in regional "Jugend forscht" competition and second place in the state-wide competition.
- Co-advising of Bachelor and Master's projects: Christina Gräfe, Christoph Bürkel, Andrea Gokus

Selection of accepted observing proposal and grants

2022 (AO-21)	70 ksec \$45k , XMM-Newton: X-ray sources and neutrinos: Investigating the most promising IceCube neutrinos	<i>PI: F. McBride</i>
2022 (AO-8)	70 ksec, \$93k , NASA/NuSTAR: Blazar X-rays and neutrinos: Investigating the most promising IceCube neutrino alerts	<i>PI: F. McBride</i>
2022	1.07 hr , Hobby-Eberly Telescope (HET): Multimessenger AMON follow-up of neutrino events	<i>PI: F. McBride</i>
2022	1.4 hr , Hobby-Eberly Telescope (HET): Accretion disks in blazar	<i>PI: F. McBride</i>
2021	40 ksec DDT , NASA/NuSTAR: Follow-up of IceCube-210922A	<i>PI: F. Krauß</i>
2021	70 ksec, \$87k , NASA/NuSTAR: Investigating the most promising IceCube neutrino alerts	<i>PI: F. Krauß</i>
2021	1 hour DDT , Very Large Array (VLA): Follow-up of IceCube event IceCube-200615A	<i>PI: F. Krauß</i>
2020	60 ksec, \$61k , NASA/NuSTAR: Understanding the hard X-ray emission in the blazar PKS 2005-489	<i>PI: F. Krauß</i>
2020	70 ksec, \$69k , NASA/NuSTAR: Investigating the most promising IceCube neutrino alerts	<i>PI: F. Krauß</i>
2021/01	1.45 hours , Hobby-Eberly Telescope (HET): Studying the accretion disk signature in FSRQs	<i>PI: F. Krauß</i>
2020/03	1.45 hours , Hobby-Eberly Telescope (HET): Studying the accretion disk signature in FSRQs	<i>PI: F. Krauß</i>
2020/01	1.76 hours , Hobby-Eberly Telescope (HET): Studying the accretion disk signature in FSRQs	<i>PI: F. Krauß</i>

Talks (selected)

Invited talks are marked in blue.

Dec 2022	Peculiar spectrum of PKS 2005-489 , <i>Fermi</i> -LAT Extragalactic Group Meeting	<i>Online</i>
Oct 2022	The peculiar X-ray variability of the BL Lac PKS 2005-489 , Mid-Atlantic Radio-Loud AGN Meeting (MARLAM 9)	<i>Online</i>
Sep 2022	Are you living with ghosts? 5 signs that your Black Hole is haunted , Invited colloquium	<i>Colby College</i>
Sep 2022	Peculiar spectrum of PKS 2005-489 , <i>Fermi</i> -LAT Weekly Analysis Meeting	<i>Online</i>
Jul 2021	A Ghost (particle) story: Blazar accretion and jets , Invited Colloquium, University Würzburg	<i>Online</i>
Jun 2021	Ghost(-particle) stories: Multiwavelength follow-up of IceCube neutrino alerts , Invited talk at HEAD Frontiers Seminar Series	<i>Online</i>
Oct 2020	X-ray view of IceCube neutrino events , Chandra Frontiers in Time-Domain Science	<i>Online</i>
Mar 2019	Neutrinos on ice -- Blazars as counterparts to neutrinos above 100 TeV , The New Era of Multi-Messenger Astrophysics	<i>the Netherlands</i>
Dec 2018	Neutrinos on ice – The search for the cosmic-ray sources , NuSTAR group meeting, Caltech, CA	<i>USA</i>
Sep 2018	TXS 0506+056, IC 170922A, and multimessenger observations of blazars , Invited colloquium at GRAPPA, Amsterdam	<i>the Netherlands</i>
Aug 2018	Multimessenger & multiwavelength observations of blazars , Invited colloquium at DESY, Zeuthen	<i>Germany</i>
Apr 2017	AGN jets and neutrinos: multimessenger studies of blazars , Invited colloquium at Radboud University	<i>the Netherlands</i>
Dec 2016	VLBI monitoring and Dynamic SEDs of southern blazars , Invited talk at HAP Workshop: Monitoring the non-thermal Universe	<i>Germany</i>
Sep 2016	The Fermi Sky in a Multimessenger Context , Invited talk at Neutrino Oscillation Workshop (NOW 2016)	<i>Italy</i>

Science communication

Feb 2023	Are you living with ghosts? 5 signs that your Black Hole is haunted , Invited presentation to high school students	Maynard Jordan Planetarium, UMaine-Orono
Jan 2020	Who you gonna call? Ghost-particle busters ", Astronomy on Tap	State College, PA
Oct 2019	Black hole demonstration , Penn State AstroFest	State College, PA
Jan 2019	Presentation and panel discussion , Nature on Tap	Los Alamos, NM
Jul 2018	Telescope observations and moon phase activity for lunar eclipse , Lunar eclipse	Amsterdam
Mar 2018	Holes in the Universe, Black holes, white holes and wormholes , Public science communication lecture (45 minutes)	Amsterdam
2015-- 2017	Participation in "Letters to a Pre-Scientist" , Exchanging letters with a middle/high-school student	USA
2017	Holes in the Universe, Black holes, white holes and wormholes , Public science communication lecture (45 minutes)	Amsterdam
2013-- 2016	Telescope observations and guided tours , giving guided tours of the historical observatory, including observations	Remeis Observatory, Bamberg

Collaborations

HEX-P, Science case for X-ray mission

AMON, Organizing X-ray follow-up of neutrino events

TANAMI, Multiwavelength observations and X-ray analysis

Fermi/LAT, Multimessenger and multiwavelength observations of blazars, flare advocate shift duties

Scientific service

Jul 2022	Astrophysical Journal referee , reviewing paper	
2021	TEAM-UP Initiative , Launching AIP TEAM-UP at Penn State, attending the implementation workshop	Penn State University
2020- 2022	Faculty Mentoring Program , Mentoring 2--4 graduate student	Penn State University
2020- 2021	Committee member , Eberly College of Science Climate and Diversity Committee	Penn State University
2019- 2021	Committee member , Astronomy & Astrophysics Department Climate and Diversity Committee	Penn State University
2018	Poster judge , PhD student poster competition at the 8th Fermi Symposium	Baltimore
2018- current	Referee , ApJ, AJ, Astroparticle Physics, Galaxies, MNRAS	Baltimore
2017	Workshop organizer , Transient Alert Mechanisms: Multimessenger follow-up symposium	Amsterdam
2016- 2017	Postdoc representative , API PhD and Postdoc council	Amsterdam
2014- current	Fermi/LAT internal referee , reviewing paper by LAT collaboration	
2014	Convenor and LOC , Annual meeting of the German Astronomical Society	Bamberg, Germany

Service to the College

2022-
2023

Bowdoin's Observatory, Organizing the Bowdoin Observatory Move

Maine

Nov 2022 **"STEAM Diversi-tea!" Social**, STEM social with Native and Latin American students

Jul 2022 **Green Office Certificate**, Eco-Rep for Physics and Astronomy Department

Tier 2

List of publications

Refereed publications

Corresponding/first-author/student-led papers are marked in blue.

41. **The peculiar variable X-ray spectrum of the active galactic nucleus PKS 2005—489**
Chase O., **McBride F.**, Gokus A., ..., et al., 2023, ApJ, accepted for publication.
40. *Search for Gamma-Ray and Neutrino Coincidences Using HAWC and ANTARES Data*
Ayalo Solares H. A., Coutu S., DeLaunay J. J., ..., **McBride F.** et al., 2023, ApJ 944, 166.
39. *Multimessenger Gamma-Ray and Neutrino Coincidence Alerts using HAWC and IceCube sub-threshold Data*
Ayalo Solares H. A., Coutu S., DeLaunay J. J., ..., **Krauß F.** et al., 2021, ApJ 906, 63.
38. *Rapid compact jet quenching in the Galactic black hole candidate X-ray binary MAXI J1535-571*
Russell T.D., Lucchini M., Tetarenko A. J., ..., **Krauß F.** et al., 2020, MNRAS 498, 5772-5785.
37. *Search for high-redshift blazars with Fermi/LAT*
Kreter M., Gokus A., **Krauß F.** et al., 2020, ApJ 903, 128.
36. *On the Detection Potential of Blazar Flares for Current Neutrino Telescopes*
Kreter M., Kadler M., **Krauß F.** et al., 2020, ApJ 902, 133.
35. **Multimessenger observations of counterparts to IceCube-190331A**
Krauß F., Calamari E., Keivani A. et al., 2020, MNRAS 497, 2553-2561.
34. *Gamma-ray emission in radio galaxies under the VLBI scope – II. The relationship between gamma-ray emission and parsec-scale jets in radio galaxies*
Angioni R., Ros E., Kadler M., ..., **Krauß F.** et al., 2020, A&A 641.
33. *The Fourth Catalog of Active Galactic Nuclei Detected by the Fermi Large Area Telescope*
The Fermi-LAT collaboration, 2020, ApJ 892, 105.
32. *X-ray spectral and flux variability of the microquasar GRS 1758-258 on timescales from weeks to years*
Hirsch M., Pottschmidt K., Smith D. M., ..., **Krauß F.** et al., 2020, A&A 636, A51.
31. *Apparent superluminal core expansion and limb brightening in the candidate neutrino blazar TXS 0506+056*
Ros. E., Kadler M., Perucho M., ..., **Krauß F.** et al, 2019, A&A 633, L1.
30. *The unique case of the active galactic nucleus core of M87: a misaligned low-power blazar?*
Lucchini M., **Krauß F.**, Markoff S., 2019, MNRAS 489, 1633-1643.
29. *Gamma-ray emission in radio galaxies under the VLBI scope. I. Parsec-scale jet kinematics and high-energy properties of γ -ray-detected TANAMI radio galaxies*
Angioni R., Ros E., Kadler M., ..., **Krauß F.** et al., 2019, A&A, 627, A148.
28. *Breaking degeneracy in jet dynamics: multi-epoch joint modelling of the BL Lac PKS 2155—304*
Lucchini M., Markoff S., Crumley P., **Krauß F.**, Connors R. M. T., 2019, MNRAS 482, 4798-4812.
27. **Fermi/LAT counterparts for IceCube neutrinos above 100 TeV**
Krauß F., Deoskar K., Baxter C. et al., 2018, A&A 620, A174.
26. *Multimessenger observations of a flaring blazar coincident with high-energy neutrino IceCube-170922A*
The IceCube collaboration, ..., **Krauß F.** et al. 2018, Science 361, eaat 1378.
25. *Extended X-ray emission in PKS 1718—649*
Beuchert T, Rodríguez-Ardila A., Moss V. A., ..., **Krauß F.** et al., 2018, A&A 612, L4.
24. **Investigating source confusion in PMN J1603—4904**
Krauß F., Kreter M., Müller C et al., 2018, A&A 610, L8.
23. *TANAMI: Tracking Active Galactic Nuclei with Austral Milliarcsecond Interferometry. II. Additional sources*
Müller C, Kadler M., Ojha R., ..., **Krauß F.** et al., 2018, A&A 610, A1.
22. *First multi-wavelength campaign on the gamma-ray-loud active galaxy IC 310*
Ahnen M. L., Ansoldi S., Antonelli L. A., ..., **Krauß F.** et al., 2017, A&A 603, A25.
21. *MAGIC detection of very high energy γ -ray emission from the low-luminosity blazar 1ES 1741+196*
Ahnen M. L., Ansoldi S., Antonelli L. A., ..., **Krauß F.** et al., 2017, MNRAS 468, 1534–1541.
20. *Multiband Observations of the Quasar PKS 2326—502 during Active and Quiescent Gamma-Ray States in 2010–2012*
Dutka M. S., Carpenter B. D., Ojha R., ..., **Krauß F.** et al., 2017, ApJ 835, 182.

19. *The MHz-peaked radio spectrum of the unusual γ -ray source PMN J1603—4904*
Müller C., Burd P. R., Schulz R., ..., **Krauß F.** et al., 2016, A&A 593, L19.
18. *Significant hardening and rising shape of MeV/GeV spectrum from new TeV-emitting blazar S4 0954+65 during brightest optical flare in 2015 February*
Tanaka Y.T., Becerra Gonzalez J., Itoh R., ..., **Krauß F.** et al., 2016, PASJ 68, 51.
17. *Coincidence of a high-fluence blazar outburst with a PeV-energy neutrino event*
Kadler M., **Krauß F.**, Mannheim K. et al., 2016, Nature Physics 12, 807–814.
16. **The TANAMI Multiwavelength Program: Dynamic SEDs of Southern Blazars**
Krauß F., Wilms J., Kadler M. et al., 2016, A&A 591, A130.
15. *Radio and Gamma-ray Properties of Extragalactic Jets from the TANAMI Sample*
Böck M., Kadler M., Müller C., ..., **Krauß F.** et al., 2016, A&A 590, 40.
14. *NuSTAR and XMM-Newton Observations of the Hard X-Ray Spectrum of Centaurus A*
Fürst F., Müller C., Madsen K.K., ..., **Krauß F.** et al. 2016, ApJ 819, 150.
13. *Optical-NIR spectroscopy of the puzzling γ -ray source 3FGL 1603.8—4903/PMNJ1603—4904 with X-shooter*
Gondoni P., Pita S., Boisson C., ..., **Krauß F.** et al. 2016, A&A 586, 2.
12. *A variable-density absorption event in NGC 3227 mapped with Suzaku and Swift*
Beuchert T., Markowitz A., **Krauß F.** et al., 2015, A&A 584, A82.
11. *The Third Catalog of Active Galactic Nuclei Detected by the Fermi Large Area Telescope*
Ackermann M., Ajello M., Atwood W.B., ..., **Krauß F.** et al., 2015, ApJ 810, 14.
10. *PSR J1906+0722: An Elusive Gamma-Ray Pulsar*
Clark C.J., Pletsch H.J., Wu J., ..., **Krauß F.** et al. 2015, ApJ 809, L2.
9. *ANTARES constrains a blazar origin of two IceCube PeV neutrino events*
Adrián-Martínez S., Albert A., ..., **Krauß F.** et al., 2015, A&A 576, L8.
8. *5.9-keV Mn K-shell X-ray luminosity from the decay of ^{55}Fe in Type Ia supernova models*
Seitenzahl I.R., Summa A., **Krauß F.** et al., 2015, MNRAS 447, 1484.
7. *Redshifted Fe K α line from the unusual gamma-ray source PMN J1603—4904*
Müller C., **Krauß F.**, Dauser T. et al., 2015, A&A 574, A117.
6. *Black hole lightning due to particle acceleration at subhorizon scales*
Aleksić J., Anoldi S., Antonelli L.A., ..., **Krauß F.**, et al., 2014, Science 346, 1080.
5. **TANAMI blazars in the IceCube PeV-neutrino fields**
Krauß F., Kadler M., Mannheim K. et al., 2014, A&A 566, L7.
4. *Rapid and multiband variability of the TeV bright active nucleus of the galaxy IC 310*
Aleksić J., Antonelli L.A., Antoranz P., ..., **Krauß F.** et al., 2014, A&A 563, A91.
3. *The unusual multiwavelength properties of the gamma-ray source PMN J1603—4904*
Müller C., Kadler M., Ojha R., ..., **Krauß F.** et al., 2014, A&A 562, A4.
2. *Multi-wavelength Observations of PKS 2142—75 during Active and Quiescent Gamma-Ray States*
Dutka M.S., Ojha R., Pottschmidt K., ..., **Krauß F.** et al., 2013, ApJ 779, 174.
1. *The simultaneous low state spectral energy distribution of 1ES 2344+514 from radio to very high energies*
Aleksić J., Antonelli L.A., Antoranz P., ..., **Krauß F.** et al., 2013, A&A 556, A67.

Conference proceedings (selected)

2. *The Fermi Sky in a Multimessenger Context*
Krauß F. for the Fermi-LAT collaboration, 2017, in: Proceedings of the Neutrino Oscillation Workshop 2016, Lecce, Italy, eds. A. Marrone, A. Mirizzi, D. Montanino; PoS(NOW2016)042
1. *TANAMI counterparts to IceCube high-energy neutrino events*
Krauß F., Wang B., Baxter C. et al. 2015, in: Proc. Fifth International Fermi Symposium, eCONF, eConf C141020.1

Recent press

2. Interview for the Bowdoin Orient, [available online](#)
1. Written interview for Reuters Fact check, [online article](#)