

Milena CRNOGORČEVIĆ

PhD | Astrophysics

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💻 PROFESSIONAL APPOINTMENTS

- August 2023 Postdoctoral Fellow at the Oskar Klein Centre for Cosmoparticle Physics, Stockholm University,
now Advisor: Prof. Timothy Linden

🎓 EDUCATION

- 2023 Doctor of Philosophy, University of Maryland, Department of Astronomy
➢ Thesis Title: *New Messengers & New Physics: A Survey of the High-energy Universe*
- 2019 Master of Science, University of Maryland, Department of Astronomy
➢ Thesis Title: *Axion-like Particles and Where to Find Them: Searching for ALP-induced Core-collapse Supernovae with Fermi*
- 2017 Bachelor of Arts, Middlebury College, major in physics and minor in mathematics
➢ Honors Thesis: *Probing into quasar/galaxy co-evolution using the OSIRIS data*
➢ *magna cum laude* with high honors
- 2013 Bi-lingual International Baccalaureate Diploma, Li Po Chun United World College of Hong Kong

💼 RESEARCH EXPERIENCE

- April 2018 NASA Goddard Space Flight Center,
July 2023 Graduate Research Assistant. Advisor: Dr. R. Caputo
➢ Member of the *Fermi*-LAT Collaboration. Affiliated with the *Fermi*-GBM and *Swift*-BAT Teams.
- September 2016 Department of Physics, Middlebury College,
May 2017 Undergraduate Research Assistant. Advisor: Prof. E. Glikman, *honors thesis*
➢ Investigating the co-evolution of post-merger galaxies and dust-reddened quasars using integral-field spectrography.
- May 2016 Department of Physics, Middlebury College,
August 2016 Undergraduate Research Assistant. Advisor: Prof. N. Graham
➢ Computing edge-correction coefficients to the proximity force approximation for the Casimir energy of an oblate spheroid facing a plane.
- May 2015 Department of Physics, Middlebury College,
August 2015 Undergraduate Research Assistant. Advisor: Prof. E. Glikman
➢ Spectral analysis of red and obscured quasars in SDSS Stripe 82.

GRANTS, HONORS, & AWARDS

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- 2024 HEAD Dissertation Prize Finalist (\$1.5k)
2022 Fermi GI Program Cycle 15: Principal Investigator (\$50k)
Light at the end of the Tunnel: Search for ALP dark matter in precursor emission of long GRBs
2022 Andrew S. Wilson Prize for Excellence in Research, Department of Astronomy, University of Maryland
2022 Department Service Award, Department of Astronomy, University of Maryland
Honoring exceptional contributions to the department through service.
2022 Best Poster Award: The High Energy Astrophysics Division (HEAD), 19th Divisional Meeting of HEAD
2022 Outstanding Graduate Research Assistant Award, University of Maryland
Recognized as among the top 2% Graduate Assistants in a given year at the University of Maryland.
2021 Award for the best talk promotion video, Kashiwa Dark Matter Symposium
2021 Price Prize nomination, Center for Cosmology and Astroparticle Physics at The Ohio State University
2020 John Mather Nobel Scholar (\$3k)
2019–20 College of Computer, Mathematical, and Natural Sciences Dean’s Fellowship (\$5k)
2017–18 Graduate School Dean’s Fellowship (\$10k)
2013–17 Davis UWC Scholar (\$20k per annum)
2011–13 Li Po Chun UWC, full merit-based scholarship (\$30k per annum)
2009 Junior Balkan Mathematical Olympiad, bronze medal

PUBLICATION LIST

First and second author:

6. M. Crnogorčević, Carlos Blanco, and Tim Linden, 2025, arXiv preprint, submitted to JCAP
Looking for the γ -Ray Cascades of the KM3-230213A Neutrino Source
5. M. Crnogorčević, M. Sten Delos, Nadia Kuritzén¹, and Tim Linden, 2025, arXiv preprint, submitted to PRD
Gamma-Ray Observations of Galaxy Clusters Strongly Constrain Dark Matter Annihilation in Prompt Cusps
4. M. Crnogorčević and Timothy Linden, 2024, Phys.Rev.D 109 8, 083018
Strong Constraints on Dark Matter Annihilation in Ursa Major III/UNIONS 1
3. C. Fletcher et. al *on behalf of the Fermi-GBM Team*; M. Crnogorčević et al. *on behalf of the Swift-BAT*, and the LVK Collaboration, 2024, ApJ 964 2, 149
A Joint Fermi-GBM and Swift-BAT Analysis of Gravitational-Wave Candidates from the Third Gravitational-wave Observing Run
2. M. Negro, M. Crnogorčević, E. Burns, E. Charles, L. Marcotulli, and R. Caputo, 2023, ApJ 951 83
Search for spatial correlation between IceCube neutrino events and the Fermi-LAT unresolved gamma-ray sky
1. M. Crnogorčević, R. Caputo, M. Meyer, N. Omodei, and M. Gustafsson, 2021, Phys.Rev.D., 104, 103001
Searching for Axion-like Particles from Core-Collapse Supernovae with Fermi LAT's Low Energy Technique

N-th author:

13. T. Linden, J.T. Li, B. Zhou, I. John, M. Crnogorčević, A.H.G. Peter, J.F. Beacom, 2025, submitted
First Observations of Solar Halo Gamma Rays Over a Full Solar Cycle
12. M. Axelsson and 153 co-authors, incl. M. Crnogorčević, submitted
GRB 221009A: the B.O.A.T Burst that Shines in Gamma Rays
11. S. Lesage and 139 co-authors, incl. M. Crnogorčević, 2023, ApJL 952 L42
Fermi-GBM Discovery of GRB 221009A: An Extraordinarily Bright GRB from Onset to Afterglow
10. D. Smith and 159 co-authors, incl. M. Crnogorčević, 2023, ApJ 958 2, 191
The Third Fermi Large Area Telescope Catalog of Gamma-ray Pulsars
9. S. Abdollahi and 112 co-authors, incl. M. Crnogorčević, 2023, ApJS 265 31
The Fermi-LAT Lightcurve Repository
8. M. Ajello and 100 co-authors, incl. M. Crnogorčević, 2022, ApJS 263 24
The Fourth Catalog of Active Galactic Nuclei Detected by the Fermi Large Area Telescope—Data Release 3
7. S. Abdollahi and 118 co-authors, incl. M. Crnogorčević, 2022, ApJ, 933, 204
Search for New Cosmic-Ray Acceleration Sites within the 4FGL Catalog Galactic Plane Sources

¹High school student at The Viktor Rydberg Schools Foundation and Viktor Rydberg Gymnasium Odenplan; co-mentored by M. Crnogorčević.

6. Y. Liu and 132 co-authors, incl. **M. Crnogorčević**, 2022, *Science*, 376, 521-523
A gamma-ray pulsar timing array constrains the nanohertz gravitational wave background
5. S. Abdollahi and 139 co-authors, incl. **M. Crnogorčević**, 2022, *ApJS*, 260, 53
Incremental Fermi Large Area Telescope Fourth Source Catalog
4. I. Mereu and 114 co-authors, incl. **M. Crnogorčević**, 2021, *ApJS*, 256, 13
Catalog of Long-Term Transient Sources in the First 10 Years of Fermi-LAT Data
3. M. Ajello and 108 co-authors, incl. **M. Crnogorčević**, 2021, *Nature Astronomy*, 5, 385-391
High-energy emission from a magnetar giant flare in the Sculptor galaxy
2. M. Ajello and 123 co-authors, incl. **M. Crnogorčević**, 2019, *ApJ*, 878, 52
A Decade of Gamma-Ray Bursts Observed by Fermi-LAT: The Second GRB Catalog
1. E. Glikman and 13 co-authors incl. **M. Crnogorčević**, 2018, *ApJ*, 861, 37
Luminous WISE-selected Obscured, Unobscured, and Red Quasars in Stripe 82

White papers:

1. R. Caputo et al. incl. **M. Crnogorčević**, *Snowmass2021 Letter of Interest*
Light Dark Matter Candidates with MeV gamma-ray signatures

A full list of publications, **including 14 GCN notices** (real-time notices in the transient community), can be found at the [ADS website](#).

📍 INVITED TALKS & COLLOQUIA

Research:

- *TBA, seminar, The Erlangen Centre for Astroparticle Physics, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany (October, 2025)*²
- [Dark Matter Rapporteur Talk](#), ICRC, Geneva, Switzerland (July, 2025)
- [“Envisioning the Future of Gamma-Ray Astronomy in Space: Overview of NASA’s FIG SAG Effort,”](#) Gamma-ray Astrophysics Panel, ICRC, Geneva, Switzerland (July, 2025)
- [“Gamma-ray Windows into the Axion Landscape: Current Status and Future Prospects,”](#) Axions in Stockholm 2025, Stockholm, Sweden (July, 2025)
- [“The Dark Matters of the Universe with *Fermi-LAT*”](#), Oskar Klein Centre Colloquium, Stockholm University, Sweden (March, 2025)
- [“The Dark Matters of the Universe with *Fermi-LAT*”](#) Sydney Consortium for Particle Physics and Cosmology (Sydney-CPPC) seminar, online (February, 2025)
- [“*Fermi* Listens for WISPer: Past, Present, and Future of *Fermi*’s Axion-like Particle Searches,”](#) 11th International Fermi Symposium, plenary talk, College Park, MD (September, 2024)
- [“WISPs, WIMPs, and Gammas: Searches for New Physics with the *Fermi* Large Area Telescope,”](#) [2nd General Meeting of COST Action COSMIC WISPer](#), Istanbul, Turkey (August, 2024)
- [“The Dark Matters of the Universe with *Fermi-LAT*”](#), Sydney Consortium for Particle Physics and Cosmology (Sydney-CPPC) seminar, online (May 2024) — *canceled due to unforeseen personal circumstances*.
- [“WISPs, WIMPs, and Gammas: Searches for New Physics with the *Fermi* Large Area Telescope,”](#) [COSMIC WISPer Colloquium](#), online (April, 2024)
- “Astrophysical Probes of Dark Matter: Past, Present, and Future of Gamma-ray Observations” plenary talk at the [Dark Matter Beyond the Weak Scale II workshop](#), Durham University, UK (March, 2024)
- [“New Messengers & New Physics: A Survey of the High-energy Universe”](#) oral presentation at the [21st Divisional Meeting of HEAD as a Dissertation Award Finalist, Horseshoe Bay, TX \(April, 2024\)](#)
- “Beyond the Visible: New Messengers and New Physics,” oral presentation at the Center for Neutrino Physics Seminar, Virginia Tech, Blacksburg, VA (April, 2023)
- “Beyond the Visible: New Messengers and New Physics,” oral presentation at SED Director’s Seminar, NASA Goddard Space Flight Center, Greenbelt, MD (February, 2023)
- “Light at the End of the Tunnel: Searching for Axion-like Particles in Gamma-ray Energies,” oral presentation at the HEP Seminar, Columbia University, New York City, NY (December, 2022)
- “Light at the End of the Tunnel: Searching for Axion-like Particles in Gamma-ray Energies,” oral presentation at the SLAC Theory Group Seminar, Stanford University, Stanford, CA (October, 2022)
- “New Physics through a Multimessenger Lens: an Exploration of the High-energy Universe,” oral presentation at the CCAPP Seminar Series, The Ohio State University, Columbus, OH (September, 2022)
- “Astrophysical searches for axion-like particles in gamma-ray energies & multimessenger studies of the high-energy Universe,” oral presentation at the Department of Physics/WIPAC Seminar Series, University of Wisconsin, Madison, WI (September, 2022)

²Future talks noted in italic

- “Catching the next wave: Searching for gamma-ray counterparts to gravitational-wave events with Fermi-GBM and Swift-BAT,” oral presentation at the NASA Marshall Space Flight Center & University of Alabama, Huntsville, AL (July, 2022)
- “Astrophysical searches for axion-like particles in gamma-ray energies & multimessenger studies of the high-energy Universe,” oral presentation at the THEAPA seminar, IoA, Cambridge, UK (June, 2022)
- “Searching for Axion-like Particles from Core-Collapse Supernovae with Fermi LAT’s Low Energy Technique,” oral presentation at the CCAPP Seminar Series, The Ohio State University, Columbus, OH (November, 2021)
- “Searching for Axion-like Particles from Core-Collapse Supernovae with Fermi LAT’s Low Energy Technique,” oral presentation at the NASA Astroparticle Physics Lab Seminar Series, Greenbelt, MD (August, 2021)

Equity, Diversity, Inclusion, and Accessibility:

- “DEI Work in Science Positions,” panelist at the special DEIA-themed Weekly Analysis Meeting, *Fermi*-LAT Collaboration; online (September, 2023)
- “*Fermi* Mentoring Program: lessons learned from near and far,” oral presentation at the Community Round Table, Department of Physics, Columbia University, New York City, NY (December, 2022)
- “Picture a Scientist,” panelist at the ICRC 2021 Diversity session, online (July, 2021)
- “Equity, Diversity, and Inclusion Initiatives at the University of Maryland Astronomy Department,” Multimessenger Diversity Network seminar, online (October, 2020)

CONTRIBUTED TALKS

- “Dark Matter from the Littlest Galaxies: Gamma-ray Insights from Ultra-Faint Dwarfs and IMBHs,” ICRC, Geneva, Switzerland (July, 2025)
- “From Gamma Rays to Multimessenger Dark Matter Searches: Establishing Fermi-LAT’s Legacy,” oral presentation at the Dark Matter and Neutrinos Workshop; Paris, France (May, 2025)
- “Dark Matter from Intermediate-Mass Black Holes with Fermi-LAT,” oral presentation at TeVPA; Chicago, IL (September, 2024)
- “Envisioning the Future of Gamma-Ray Astronomy in Space: Overview of NASA’s FIG SAG Effort,” oral presentation at TeVPA; Chicago, IL: (September, 2024)
- “New physics through a multimessenger lens: searching for axion-like particles from transient astrophysical events,” oral presentation at TeVPA; Naples, Italy (September, 2023)
- “New physics through a multimessenger lens: searching for axion-like particles from transient astrophysical events,” dissertation presentation at 241 AAS Meeting; Seattle, WA (January, 2023)
- “Searching for Axionlike Particles from Gamma-ray Bursts with Fermi,” oral presentation at TeVPA; Kingston, Canada (August, 2022)
- “Searching for Gamma- and hard X-ray Counterparts to Gravitational-wave events in GWTC-3 with Fermi-GBM and Swift-BAT,” oral presentation at TeVPA; Kingston, Canada (August, 2022)
- “Searching for Axion-like Particles from Core-Collapse Supernovae with Fermi LAT’s Low Energy Technique,” oral presentation at the APS April Meeting; New York City, NY (April, 2022)
- “Searching for Gamma- and X-ray Counterparts to Gravitational-wave events with Fermi-GBM and Swift-BAT,” poster presentation at the APS April Meeting; New York City, NY (April, 2022)
- “Searching for Axion-like Particles from Core-Collapse Supernovae with Fermi LAT’s Low Energy Technique,” poster presentation at the 19th HEAD Meeting; Pittsburgh, PA (March, 2022)
- “Searching for Axion-like Particles from Core-Collapse Supernovae with Fermi LAT’s Low Energy Technique,” oral presentation at Kashiwa Dark Matter Symposium; online (November, 2021)
- “Axion-like Particles from Core-collapse Supernovae: Investigating Fermi’s Sensitivity,” poster presentation at A Rainbow of Dark Sectors, Aspen Center for Physics; online (March, 2021)
- “Axion-like Particles from Core-collapse Supernovae: Investigating Fermi’s Sensitivity,” oral presentation at the virtual *Fermi* Collaboration Meeting; online (March, 2020)
- “ALP-induced Core-collapse Supernovae,” oral presentation at *Fermi* Collaboration Meeting, Santa Cruz, CA (September, 2019)
- “Axion-like Particles and Where to Find Them,” oral presentation at *Fermi* Summer School, Lewes, DE (June, 2018)
- “Quasar/Galaxy Co-evolution with OSIRIS,” oral presentation at Undergraduate Spring Research Symposium, Middlebury College; Middlebury, VT (April, 2017)
- “Quasar/Galaxy Co-evolution with OSIRIS,” oral presentation at APS Conference for Undergraduate Women in Physics, Harvard University; Cambridge, MA (January, 2017)
- “Edge Expansion of Scalar Casimir Energies,” poster presentation at Undergraduate Summer Research Symposium, Middlebury College; Middlebury, VT (August, 2016)
- “New Selection Criteria for Red and Obscured Quasars in Stripe 82,” poster presentation at APS Conference for Undergraduate Women in Physics, Syracuse University; Syracuse, NY (January, 2016)
- “New Selection Criteria for Red and Obscured Quasars in Stripe 82,” presentation at Keck Northeast Astronomy Consortium Undergraduate Symposium on Research in Astronomy, Williams College; Williamstown, MA (October, 2015)

TEACHING EXPERIENCE

Teaching Assistant for Introductory Astronomy , College Park, MD <i>Astronomical observations and history of astronomy, Solar system, stellar evolution, galaxy morphology and evolution, cosmology</i> • Instructors: Prof. Suvi Gezari (Fall 2017), Prof. Alberto Bolatto (Spring 2018)	2017–2018
Astronomy Outreach & Telescope Operator , Middlebury, VT <i>Conducting observatory events and operating telescopes at the Mittelman Observatory</i> • Advisor: Jonathan Kemp	2015–2017
Tutor at the Center for Teaching, Learning, and Research , Middlebury, VT <i>Newtonian Physics, Electricity and Magnetism</i>	2014–2017
Teaching Assistant for Applied Mathematics to Physical Sciences , Middlebury, VT <i>Complex numbers and functions, sequences and series, ODE's, Fourier analysis, multi-variable calculus, special functions, and vector calculus</i> • Instructor: Prof. Stephen J. Ratcliff	2016
Laboratory Assistant for Newtonian Physics , Middlebury, VT <i>Demonstrating techniques and instruments used in the experiments pertaining to classical mechanics: inertia, force, Newton's laws of motion, work and energy, linear momentum, collisions, gravitation, rotational motion, torque, angular momentum, and oscillatory motion</i> • Instructor: Prof. Richard Wolfson	2015
Teaching Assistant for Electricity and Magnetism , Middlebury, VT <i>Practical topics from electricity and magnetism, voltage, current, resistance, capacitance, inductance, and AC and DC circuits</i> • Instructor: Prof. Noah Graham	2014–2015
Teaching Assistant for Newtonian Physics , Middlebury, VT <i>Introductory level classical mechanics</i> • Instructor: Prof. Anne Goodsell	2014

SERVICE & OUTREACH

> Founder and organizer, ArXiv Daily Roast	2024–now
> Team Lead, ScientiFika	2024–now
> Meeting co-organizer, Beyond the Standard Model Working Group	2024–now
> Co-chair of Future Innovations in Gamma rays Science Analysis Group, FIG SAG	2023–now
> Journal reviewer for <i>Physical Review Letters</i> , <i>Physical Review D</i> , <i>Journal of Cosmology and Astroparticle Physics</i>	2022–now
> Science coordinator of Dark Matter & New Physics working group, <i>Fermi-LAT</i>	2022–2023
> Mentoring Program founder & organizer , <i>Fermi-LAT/GBM Collaborations</i>	2020–2023
> DEI Committee Member, <i>Fermi-LAT</i>	2020–2023
> Gamma-ray Burst Advocate, ~10 week-long shifts/year, <i>Fermi-LAT</i>	2018–2023
> GRAD-MAP Team co-lead , University of Maryland	2019–2022
> BANG! Seminar lead organizer , University of Maryland	2019–2021
> EDI Committee member , Department of Astronomy, University of Maryland	2017–2021
> Fermi-LAT Reddit Ask Me Anything	August 2020
> ACE (formerly known as AGN) mentor to undergraduate students, University of Maryland	2018–2019
> Equity Constellation, The Access Network member , University of Maryland	2017–2018
> Women in Physics luncheon co-founder, Middlebury College	2016–2017

I served on a number of short-term initiatives, including but not limited to conducting graduate student interviews, participating in faculty searches, organizing the UMD Astronomy peer mentoring program, organizing and participating in a number of panels (e.g. applying to graduate school, GSFC/UMD connection, etc.), organizing visits to GSFC for prospective students, acting as a point person for the Department of Astronomy Mental Health Survey, organizing virtual check-in spaces during the Covid-19 pandemic, etc.

IN THE NEWS

- > First Observations of γ -rays from the Solar Halo, [astrobites](#), June 2025
- > Brightest-Ever Space Explosion Reveals Possible Hints of Dark Matter, [Quanta Science Podcast](#), March 2023
- > Brightest ever space explosion could help explain dark matter, [Quanta Magazine](#), October 2022
- > Early-career Scientist Spotlight at NASA Goddard: Milena Crnogorčević, June 2022

SUMMER SCHOOLS, WORKSHOPS, AND COMPETITIONS

- › Summer School in Astrostatistics and Astroinformatics, Center for Astrostatistics at the Pennsylvania State University (June, 2022)
- › SSI 2020 “The Almost Invisibles: Exploring the Weakly Coupled Universe,” SLAC Summer Institute (August 2020)
- › *Fermi* Summer School, Lewes, DE (June, 2018)
- › The Access Network Assembly, Denver, CO (May, 2018)
- › Four-time participant of the Mathematics Program at the Petnica Scientific Center, Petnica, Serbia (2010)
- › Member of the Montenegrin National Team and a two-time participant of the Junior Balkan Mathematical Olympiad (JMBO)

</> COMPUTING SKILLS

Programming Highly proficient in MATLAB, Python, XSPEC, *GtBurst*, Wolfram Mathematica, \LaTeX ; proficient in PyRAF, IDL, Adobe Illustrator, TOPCAT, DS9; beginner in Bash, C, Git, HTML/CSS.

Operating Systems macOS, Linux, Windows

GENERAL INFORMATION

MEMBERSHIP: American Astronomical Society (AAS), American Physical Society (APS), European Astronomical Society (EAS)

LANGUAGES: Serbian (native), English (bilingual proficiency), Italian (professional working proficiency), Spanish and German (elementary proficiency)

‘‘ REFERENCES

Dr. Regina Caputo (overall)

Research Astrophysicist

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Prof. Tim Linden (research)

Associate Professor

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Prof. Manuel Meyer (research)

Associate Professor

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Prof. Coleman Miller (research)

Professor

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Prof. Massimo Ricotti (research)

Professor

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Prof. Stuart Vogel (outreach)

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