

# Milena CRNOGORČEVIĆ

## PhD | Astrophysics

Pronouns: she/her/hers

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## PROFESSIONAL APPOINTMENTS

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

## EDUCATION

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- 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

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- 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-redenned 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.

- 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  $\gamma$ -Ray Cascades of the KM3-230213A Neutrino Source*
5. **M. Crnogorčević**, M. Sten Delos, Nadia Kuritzén<sup>1</sup>, 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*

<sup>1</sup>High 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)<sup>2</sup>*
- > *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 WISPerS: Past, Present, and Future of Fermi’s Axion-like Particle Searches,”* 11th International Fermi Symposium, plenary talk, College Park, MD (September, 2024)
- > *“WISPerS, WIMPs, and Gammas: Searches for New Physics with the Fermi Large Area Telescope,”* 2nd General Meeting of COST Action COSMIC WISPerS, 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*.
- > *“WISPerS, WIMPs, and Gammas: Searches for New Physics with the Fermi Large Area Telescope,”* COSMIC WISPerS 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)

<sup>2</sup>Future 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

<b>Teaching Assistant for Introductory Astronomy</b> , 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
<b>Astronomy Outreach &amp; Telescope Operator</b> , Middlebury, VT <i>Conducting observatory events and operating telescopes at the Mittelman Observatory</i> • Advisor: Jonathan Kemp	2015–2017
<b>Tutor at the Center for Teaching, Learning, and Research</b> , Middlebury, VT <i>Newtonian Physics, Electricity and Magnetism</i>	2014–2017
<b>Teaching Assistant for Applied Mathematics to Physical Sciences</b> , 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
<b>Laboratory Assistant for Newtonian Physics</b> , 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
<b>Teaching Assistant for Electricity and Magnetism</b> , 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
<b>Teaching Assistant for Newtonian Physics</b> , 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, <a href="#">ScientiFika</a>	2024–now
> Meeting co-organizer, <a href="#">Beyond the Standard Model Working Group</a>	2024–now
> Co-chair of Future Innovations in Gamma rays Science Analysis Group, <a href="#">FIG SAG</a>	2023–now
> Journal reviewer for Physical Review Letters, Physical Review D, Journal of Cosmology and Astroparticle Physics	2022–now
> Science coordinator of Dark Matter & New Physics working group, <i>Fermi-LAT</i>	2022–2023
> <a href="#">Mentoring Program founder &amp; organizer</a> , <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
> <a href="#">GRAD-MAP Team co-lead</a> , University of Maryland	2019–2022
> <a href="#">BANG! Seminar lead organizer</a> , University of Maryland	2019–2021
> <a href="#">EDI Committee member</a> , Department of Astronomy, University of Maryland	2017–2021
> <a href="#">Fermi-LAT Reddit Ask Me Anything</a>	August 2020
> <a href="#">ACE</a> (formerly known as AGN) <b>mentor to undergraduate students</b> , University of Maryland	2018–2019
> <a href="#">Equity Constellation</a> , <a href="#">The Access Network member</a> , University of Maryland	2017–2018
> <b>Women in Physics luncheon co-founder</b> , 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  \$\gamma\$ -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,  $\text{\LaTeX}$ ; 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*

NASA GODDARD SPACE FLIGHT CENTER

[regina.caputo at nasa dot gov](mailto:regina.caputo@nasa.gov)

### Prof. Tim Linden (research)

*Associate Professor*

STOCKHOLM UNIVERSITY

[linden at fysik dot su dot se](mailto:linden@fysik.su.se)

### Prof. Manuel Meyer (research)

*Associate Professor*

UNIVERSITY OF SOUTHERN DENMARK

[mey at sdu dot dk](mailto:mey@sdu.dk)

### Prof. Coleman Miller (research)

*Professor*

UNIVERSITY OF MARYLAND

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### Prof. Massimo Ricotti (research)

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### Prof. Stuart Vogel (outreach)

*Professor*

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