

MARK IVAN UGALINO

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EDUCATION

- University of Maryland, College Park** Fall 2023 – *present*
Doctor of Philosophy in Astronomy, *PhD candidate since Fall 2025, expected Spring 2028*
Department of Astronomy
Dissertation: *Galactic magnetic fields from star-forming clouds to the cosmic web*
- University of Massachusetts, Dartmouth** 2021 – 2023
Master of Science in Physics
College of Engineering
Thesis: *Turbulently driven deflagration-to-detonation transition in near-Chandrasekhar white dwarfs*
- University of the Philippines, Diliman** 2018 – 2020
Master of Science in Physics
National Institute of Physics
Thesis: *Dynamical friction effects on circular orbits immersed in a finite gaseous background*
- University of the Philippines, Diliman** 2013 – 2018
Bachelor of Science in Physics
National Institute of Physics
Thesis: *Density perturbation induced by relativistic bodies in slightly eccentric orbits*

MENTORING

- Nar Jasen Dela Cruz** (BS Physics '26, University of the Philippines Baguio, co-adviser
now Academia Sinica Institute of Astronomy and Astrophysics summer student)
- Jin Young Kim** (Wake Technical Community College *through* GRAD-MAP Summer Scholars 2025,
now BS Physics, University of North Carolina Chapel Hill)
- Prabodha Mudalige** (MS Physics, UMass Dartmouth *now* PhD Physics, UT Knoxville)
and 4 other graduate and undergraduate students mentored

PEER-REVIEWED PUBLICATIONS

* - Major contributions as co-author

- 4.* *First-Principles Turbulence-Driven Deflagration-to-Detonation Transition Mechanism for Near-Chandrasekhar Mass White Dwarf Progenitors*
K Patel, R Fisher et al, **incl MI Ugalino** (2026) *ApJ* (in press, arXiv)
- 3.* *Using ^{44}Ti Emission to Differentiate Between Thermonuclear Supernova Progenitors*
D Kosakowski, **MI Ugalino**, R Fisher, et al (2023), *MNRAS Letters* 519(1), L74–L78
2. *Steady-state density perturbations induced by a point mass in a finite cylinder*
MI Ugalino, MFI Vega (2020) *Proceedings of the 38th Samahang Pisika ng Pilipinas Physics Congress*
1. *Density perturbations in a collisional fluid induced by a particle on a slightly-eccentric orbit*
MI Ugalino, MFI Vega (2018) *Proceedings of the 36th Samahang Pisika ng Pilipinas Physics Congress*

GRANTS AND RECOGNITIONS

- Maryland Space Grant Consortium Activity Grant (USD 28,340.00)** 2026
"GRAD-MAP: A unique model for graduate student-led mentoring and outreach in astronomy and physics", (Co-PI, with Yash Gursahani and Benedikt Diemer)
- 2023 NASA FINESST Research Grant (USD 148,826.00)** *declined*
Among first 27 selected for award out of 262 submitted proposals (10.3% award rate)
- Graduate Dean's Fellowship (USD 10,000.00)** Fall 2023
Department of Astronomy, University of Maryland College Park
and 11 other awards and fellowships

PROFESSIONAL EXPERIENCE

- Graduate Research Assistant** (~ 5 years, 9 months)
Department of Astronomy, University of Maryland College Park (01/2024–present)
Department of Physics, UMass Dartmouth (05/2021–08/2022)
- Graduate Teaching Assistant** (4 years)
Department of Astronomy, University of Maryland College Park (08–12/2023)
Department of Physics, UMass Dartmouth (as Instructor of Record / Teaching Fellow, 09/2022–05/2023)
Department of Physics, UMass Dartmouth (01–05/2021)
National Institute of Physics, UP Diliman (as Instructor of Record / Instructor, (08/2018–12/2020)
- Graduate Student Intern** 06–08/2023 (3 months)
Los Alamos National Laboratory

INVITED PRESENTATIONS

- University of Massachusetts Dartmouth Physics seminar** 09/12/2025
North Dartmouth, MA, U.S.A.
- Harvard-Smithsonian Center for Astrophysics** 09/11/2025
Cambridge, MA, U.S.A.
- 1st Philippine Space Science and Astronomy Research Conference** 08/11/2025
Manila, Philippines (online)
- and 4 other invited talks in local and international institutions

CONTRIBUTED PRESENTATIONS

- RAMSES User Meeting 2026 (talk)** 04/29/26
Yonsei University, Seoul, South Korea
- Magnetic Fields and Cosmic Rays across Diverse Scales: What's Next? (poster)** 09/10/2025
Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, U.S.A.
- Supercomputing 2023 (poster)** 11/12–17/2023
Denver, CO, U.S.A.
- and 5 other contributed posters and talks in local and international institutions

SERVICE

University of Maryland, College Park

- Co-lead of the GRAD-MAP program from 2024 to 2026, co-authoring successful grant proposals totaling over \$34,000, managing program logistics, organizing journal clubs, mentoring students, and developing educational and outreach materials
- Developer for the GRAD-MAP Code Lab, creating open-source astronomy and programming learning resources (2026 – present)
- Participated in graduate admissions activities, including applicant interviews and prospective student recruitment events, and the graduate student council (2024 – present)

PROFESSIONAL REFERENCES

Prof. Benedikt Diemer

diemer (at) umd (dot) edu
Department of Astronomy, UMaryland College Park

Prof. Robert Fisher

robert.fisher (at) umassd (dot) edu
Department of Physics, UMass Dartmouth

Prof. Ian Vega

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National Institute of Physics, UP Diliman

Prof. Bo Dong

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Department of Mathematics, UMass Dartmouth