

Alex M. Garcia

Contacts

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-Honors and Awards-

- ◇ Virginia Space Grant Consortium Research Fellow (UVA)
2024-2025
- ◇ Graduate Student Teaching Award (UF)
Spring 2023
- ◇ Outstanding Master's Thesis (UF)
Fall 2022
- ◇ Outstanding Research Presentation (UF)
Fall 2022
- ◇ Distinguished Contributions by a Graduate Student (UF)
Fall 2022
- ◇ Distinguished Service and Citizenship (UF)
Fall 2022
- ◇ Tutor of the Year Finalist; Honorable Mention (UIUC)
Spring 2021
- ◇ Eagle Scout, Boy Scouts of America
April 2015

-Student Mentoring-

- ◇ Caitlin O'Brien (UF REU)
2022-24
- ◇ Zach Stevens (UVA)
2023-24
- ◇ Laura Carnevale (UVA)
2024-25

Education

University of Virginia
2023 – Present

Doctorate of Philosophy in Astronomy
Master's of Science in Astronomy

University of Florida
2021 – 2023

Master's of Science in Astronomy

University of Illinois
2017 – 2021

Bachelor's of Science in Engineering Physics (*Honors*)
Bachelor's of Science in Astronomy (*Distinction*)

Research Experience

Graduate Researcher
2021 – Present

University of Virginia
University of Florida
Paul Torrey

Undergraduate Researcher
2020 – 2021

University of Illinois
Bryan Dunne & Yue Shen

Publications

[NASA/ADS Library]

Summary: 5 h-index, 49 total citations

First/Corresponding Author

5. *Star Formation, Metallicity, and Stellar Mass on kpc-scales in IllustrisTNG*
4. *Does the Fundamental Metallicity Relation Evolve with Redshift? II: The Evolution in Normalisation of the Mass-Metallicity Relation* [arXiv] Submitted
3. *Does the Fundamental Metallicity Relation Evolve with Redshift? I: The Correlation Between Offsets from the Mass-Metallicity Relation and Star Formation Rate* [arXiv] [MNRAS]
2. *Interplay of Stellar and Gas-Phase Metallicities: Unveiling Insights for Stellar Feedback Modeling with Illustris, IllustrisTNG, and EAGLE* [arXiv] [MNRAS]
1. *Gas-phase metallicity break radii of star-forming galaxies in IllustrisTNG* [arXiv] [MNRAS]

Selected Co-Author Papers

4. *Unveiling the Cosmic Chemistry: Revisiting the Mass-Metallicity Relation with JWST/NIRSpec at $4 < z < 10$* [arXiv]
3. *Extragalactic Archaeology: the chemical and accretion history of NGC 1365* Submitted
2. *The DREAMS project: DaRk mattER and Astrophysics with Machine learning and Simulations* [arXiv]
1. *The First Quiescent Galaxies in TNG300* [arXiv] [MNRAS]

Non-research

2. *Hands-on Astronomy – Tenth Edition*
UF Astronomy 1022L Lab manual [Summary]
1. *Astronomy Laboratory Exercises and eXperiments (ALEX)*
UF Astronomy 1022L Lab software [Github] [View]

- ◇ Martin Liu (UVA)
2024
- ◇ Item Leisher (Grinnell College)
2024

Service

- Host**
Journal Club (UVA Astro)
2024-Present
- Member**
Dark Skies, Bright Kids Outreach Group (UVA Astro)
2023-Present
- Referee**
Monthly Notices of the Royal Astronomical Society (MNRAS)
2023-2024
- Gradaute Student Rep.**
Committee for Diversity, Equity and Inclusion (UF Astro)
2021 - 2023

Other Work

- Planetarium Assistant**
Kika Silva Pla Planetarium
Gainesville, FL
2021 - 2023
- Tutor/Lead Tutor**
College of Engineering (UIUC)
Urbana, IL
2018 - 2021

Contributed Talks & Presentations

Conference Contributions:

- 5. The Multi-phase ISM in Galaxies – Bologna, Italy [Poster] September 2024
- 4. Connecting Simulations and Observations – Barossa, Australia June 2024
- 3. Regulating Star Formation Across Time – STScI, USA [Video] April 2024
- 2. Building Galaxies from Scratch – Vienna, Austria [Poster] February 2024
- 1. Resolving Galaxy Ecosystems – Hong Kong, China December 2023

Invited Seminars

- 2. Virginia Tech Astronomy Seminar September 2024
- 1. Australian National University Astronomy Seminar June 2024

Other Formal Presentations:

- 6. Diemer Group Meeting – U. Maryland October 2024
- 5. Astrophysics Theory Group – U. Virginia September 2024
- 4. Ellison Group Meeting – U. Victoria (virtual) February 2024
- 3. Vogelsberger Group Meeting – MIT November 2023
- 2. Kewley Group Meeting – CfA Harvard-Smithsonian November 2023
- 1. Ellison Group Meeting – U. Victoria (virtual) May 2023

Guest Lectures:

- 3. McCormick Observatory Public Night – U. Virginia July 2024
- 2. ASTR 3830 (×3) – U. Virginia Spring 2024
- 1. ASTR 5110 – U. Virginia September 2023

Teaching

Institution		Course		Semester
Virginia	ASTR	2110	- Intro to Astrophysics	FA 24
		†1250	- Alien Worlds	SU 24
		4470	- Computational Astrophysics	SP 24
		3830	- Planetary Astronomy (+Lab)	SP 24
		1220	- Stars, Galaxies, and Universe	SP 24
		5110	- Astronomical Techniques	FA 23
Florida	AST	†1022	- Astronomy Laboratory	SP 23
		†1022	- Astronomy Laboratory	SP 22
		1002	- Discovering the Universe	FA 21
Illinois	ASTR	330	- Extraterrestrial Life	SP 21
		330	- Extraterrestrial Life	W 21
		100	- Introduction to Astronomy	FA 20
		150	- Killer Skies: Astro-Disasters	FA 20

† Primary instructor (UVA; Summer 2024 – UF; Spring 2023, 2022)