

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

—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]

First Author

4. *Does the Fundamental Metallicity Relation Evolve with Redshift? II: The Evolution in Normalisation of the Mass-Metallicity Relation.* **2024c** [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.* **2024b** [arXiv] [MNRAS]
2. *Interplay of Stellar and Gas-Phase Metallicities: Unveiling Insights for Stellar Feedback Modeling with Illustris, IllustrisTNG, and EAGLE.* **2024a** [arXiv] [MNRAS]
1. *Gas-phase metallicity break radii of star-forming galaxies in IllustrisTNG.* **2023** [arXiv] [MNRAS]

Co-Author

7. *Unveiling the Cosmic Chemistry: Revisiting the Mass-Metallicity Relation with JWST/NIRSpec at $4 < z < 10$* [arXiv]
6. *How DREAMS are made: Emulating subhalo populations under alternative dark matter scenarios with Diffusion Models*
5. *Extragalactic Archaeology: the chemical and accretion history of NGC 1365*
4. *The DREAMS project: DaRk mattEr and Astrophysics with Machine learning and Simulations* [arXiv]
3. *Quantifying azimuthal variations within the interstellar medium of spiral galaxies with the TYPHOON survey* Submitted
2. *Can we constrain warm dark matter masses with individual galaxies?* [arXiv] [APJ]
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 As-
tronomical Society (MNRAS)
2023

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*

Presentations:

7. Colloquium – Australian National University *June 2024*
6. Sara Ellison Group Meeting – U. Victoria (*virtual*) *February 2024*
5. Master's Defense – U. Virginia *November 2023*
4. Mark Vogelsberger Group Meeting – MIT *November 2023*
3. Lisa Kewley Group Meeting – CfA Harvard-Smithsonian *November 2023*
2. Sara Ellison Group Meeting – U. Victoria (*virtual*) *May 2023*
1. Master's Defense – U. Florida [**Video**] *September 2022*

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

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

◇ Head TA for Telescope Observing (UVA; Spring 2024)