

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 Student)
2022-24
- ◇ Zach Stevens (UVA Undergrad)
2023-24

—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** [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

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?* [\[arXiv\]](#)
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 [\[Github\]](#) [\[View\]](#)

◇ Laura Carnevale (UVA Undergrad)
2024

DREAMS Project Undergrads
2024

◇ Martin Liu (UVA)

◇ Item Leisher (Grinnell College)

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

Graduate Student Rep.

Committee for Diversity, Equity and
Inclusion (UF Astro)
2021 - 2023

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:

2. ASTR 3830 (×3) – U. Virginia *Spring 2024*
1. ASTR 5110 – U. Virginia *September 2023*

Teaching

| Institution | | Course | | Semester |
|-------------|------|--------|---------------------------------|----------|
| Virginia | ASTR | †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)

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

Planetarium Assistant

2021 – 2023

Gainesville, FL
Kika Silva Pla Planetarium

Tutor

2018 – 2021

Urbana, IL
Grainger College of Engineering