

# Alex M. Garcia

## —Contacts—

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## —Honors and Awards—

- Graduate Student Teaching Award (UF)  
*Spring 2023*
- The Million Scholarship for Excellence in Astronomy and Astrophysics: Outstanding Master's Thesis (UF)  
*Fall 2022*
- Million Graduate Student Research Symposium Award for Outstanding Research Presentation (UF)  
*Fall 2022*
- John Oliver Award for Distinguished Contributions to the Department by a Graduate Student (UF)  
*Fall 2022*
- Astro Award for Distinguished Service and Citizenship (UF)  
*Fall 2022*
- Tutor of the Year Finalist; Honorable Mention (UIUC)  
*Spring 2021*
- Dean's List (UIUC):
  - ◊ College of Liberal Arts and Sciences  
*Fall 2020*
  - ◊ Grainger College of Engineering  
*Spring 2018, 2019*
- Access and Achievement Scholar (UIUC)  
*Fall 2017 - Spring 2021*
- Eagle Scout, Boy Scouts of America  
*April 2015*

## —Education—

<b>University of Virginia</b> <i>2023 – Present</i>	Doctorate of Philosophy in Astronomy Master's of Science in Astronomy
<b>University of Florida</b> <i>2021 – 2023</i>	Master's of Science in Astronomy
<b>University of Illinois</b> <i>2017 – 2021</i>	Bachelor's of Science in Engineering Physics ( <i>Honors</i> ) Bachelor's of Science in Astronomy ( <i>Distinction</i> )

## —Research Experience—

<b>Graduate Researcher</b> <i>2021 – Present</i>	University of Virginia & University of Florida Advisor: Paul Torrey
<b>Mentoring:</b> <ul style="list-style-type: none"><li>◊ Caitlin O'Brien (2022-23; REU Student) – Parameterizing Splashback Radii-Mass Relations of Galaxy Clusters with IllustrisTNG Simulations</li></ul>	
<b>Undergraduate Researcher</b> <i>2020 – 2021</i>	University of Illinois Advisors: Bryan Dunne & Yue Shen

## —Publications—

### First Author Publications:

2. *Interplay of Stellar and Gas-Phase Metallicities: Unveiling Insights for Stellar Feedback Modeling with Illustris, IllustrisTNG, and EAGLE:*  
**Garcia**, et al., Submitted [[Preprint](#)]
1. *Gas-phase metallicity break radii of star-forming galaxies in IllustrisTNG*  
**Garcia**, et al., Accepted. [[arXiv](#)] [[MNRAS](#)]

### Co-Author Publications:

4. *Gas-phase metallicity plateaus in TNG50 galaxies*  
Hemler, **Garcia**, Torrey, Hernquist, Kewley, Grasha, Nelson. MNRAS. In Prep
3. *Resolving scaling relations in IllustrisTNG at  $z = 0$*   
Qi, Torrey, Moreno, Hemler, Hernquist, **Garcia**. MNRAS. In Prep
2. *Extragalactic Archaeology: the chemical and accretion history of NGC 1365*  
Kewley, Grasha, Hemler, **Garcia**, et al., Nature Astronomy. In Prep
1. *The First Quiescent Galaxies in TNG300*  
Hartley, Nelson, Suess, **Garcia**, et al., MNRAS. Accepted. [[arXiv](#)] [[MNRAS](#)]

### Talks:

3. *Using the metal content of galaxies to inform stellar feedback modeling*  
Sara Ellision Group Meeting  
*May 2023* [[Slides](#)]
2. *Stellar Metallicities as a Star Formation History Diagnostic*  
UF Graduate Symposium  
*October 2022* [[Slides](#)]
1. *Metallicity Break Radii in IllustrisTNG Galaxies*  
Master's Defense  
*September 2022* [[Video](#)]

## Service

### Referee

Monthly Notices of the Royal Astronomical Society (MNRAS)

2023

### Graduate Student

#### Representative:

Committee for Diversity, Equity and Inclusion

University of Florida Astronomy

2021 - 2023

## Technical Skills

●●● = Fluent  
●●● = Proficient  
●●● = Familiar

●●● Python  
●●● L<sup>A</sup>T<sub>E</sub>X    ●●● Tikz  
●●● Microsoft Office  
●●● Google Workspace  
●●● JavaScript  
●●● HTML  
●●● CSS  
●●● Bash  
●●● SLURM  
●●● Git/Github  
●●● R

## Hobbies/Interests

Alachua (FL) Astronomy Club

2021-2023

Bluecoats Drum and Bugle Corps

Summer 2019, 2020, 2021

Madison Scouts Drum Corps

Summer 2017, 2018

## Non-research Publications:

### 2. *Hands-on Astronomy – Tenth Edition*

– UF Astronomy 1022L Lab manual updates [\[Summary\]](#)

### 1. *Astronomy Laboratory Exercises and eXperiments (ALEX)*

– UF Astronomy 1022L Lab software [\[Github\]](#) [\[View\]](#)

## Professional Experience

### Teaching/Course Assistant

Charlottesville, VA

Gainesville, FL

Urbana, IL

	Course	Semester
Univ. of Virginia	ASTR ??? - TBD	Spring 2024
Univ. of Florida	AST 1022L - Astronomy Laboratory	Spring 2023
	AST 1022L - Astronomy Laboratory	Spring 2022
	AST 1002 - Discovering the Universe	Fall 2021
Univ. of Illinois	ASTR 330 - Extraterrestrial Life	Spring 2021
	ASTR 330 - Extraterrestrial Life	Winter 2021
	ASTR 100 - Introduction to Astronomy	Fall 2020
	ASTR 150 - Killer Skies: Astro-Disasters	Fall 2020

– During the Spring 2022 semester, I reformatted the entire AST 1022L lab manual into LaTeX (including most of the figures in Tikz) for ease of editing and uniformity throughout the entire 160+ page manual.

– Host observatory sessions at the campus observatory for students in the course to attend. Includes setting up an array of telescopes and fielding student questions on their assignments.

### Planetarium Assistant

2021 – 2023

Gainesville, FL

Kika Silva Pla Planetarium

– Designed, developed, and presented planetarium shows for K-12 classes, collegiate-level curricula, as well as the general public.

– Hosted several shows, including *Florida Skies*: an hour long tour of the Gainesville night sky using a CHRONOS II optical-mechanical projector.

### Tutor

2018 – 2021

Urbana, IL

Center for Academic Resources in Engineering