

# Deryl E. Long

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Department of Astronomy  
University of Virginia

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## RESEARCH INTERESTS

I am interested in studying the origins and characteristics of planetary systems through astrochemical modeling and observations.

## EDUCATION

**University of Virginia, Charlottesville, VA** 2020 - Present  
PhD Astronomy, Expected 2025  
GPA: 3.93/4.0

**University of Michigan, Ann Arbor, MI** 2016 - 2020  
B.S. Astronomy & Astrophysics, May 2020 *Highest Honors*  
Minor: Gender, Race, and Nation  
GPA: 3.65/4.00

## RESEARCH EXPERIENCE

**Department of Astronomy, University of Virginia** August 2020 - Present  
*Advised by Prof. Ilse Cleeves*

- Constraining the 2D ionization environments of protoplanetary disks.
- Utilizing the latest ALMA observations of molecular species as well as a 2D chemical code to forward model disks' chemical and physical environments.

**Department of Astronomy, University of Michigan** May 2019 - August 2020  
*Honors Thesis Research with Prof. Edwin Bergin*

- Studied dust substructures in the GQ Lup system to understand planet formation in compact disks.
- Identified and characterized substructures, uncovering evidence of planet formation at Saturnian distances.

**Department of Astronomy, University of Michigan** September 2016 - April 2019  
*Undergraduate Researcher with Prof. Emily Rauscher*

- Studied the atmospheric evolution of Uranus through modeling in Python and IDL.
- Developed Python tool coupling 3D global circulation models and radiative transfer to model atmospheres of non-transiting hot Jupiters.

## PUBLICATIONS AND PRESENTATIONS

1. **Long, D. E.**, Zhang, K., Teague, R., Bergin, E. 2020 ApJL 895 L46  
*Hints of a Population of Solar System Analog Planets from ALMA*
2. **Long, D. E.**, Cleeves, L.I.  
*Fasten Your Seatbelts: Constraining Ionization in a Turbulent Disk*  
Oral Presentation, AAS 238th Meeting, Virtual. June 2021.
3. Malsky, I., Rauscher, E., Kempton, E. -M.R., Roman, M., **Long, D. E.**, Harada, C. K. 2021 ApJ 923 62  
*Modeling the high-resolution emission spectra of clear and cloudy non-transiting hot Jupiters*
4. **Long, D. E.**, Zhang, K., Teague, R., Bergin, E.  
*Hints of a Population of Solar System Analog Planets from ALMA*  
Poster Presentation, AAS 235rd Meeting, Honolulu, HI. January 2020.
5. **Long, D.E.**, Rauscher, E., Kempton, E.  
*Hidden Gems: Investigating Atmospheric Doppler Signatures in High Resolution Emission Spectra of Non-Transiting Hot Jupiters*  
Poster Presentation, AAS 233rd Meeting, Seattle, WA. January 2019.  
Poster Presentation, Astronomy Undergraduate Symposium, University of Michigan, Ann Arbor, MI. April 2019.

6. **Long, D.E.**, Rauscher, E., Roman, M.  
*Trying to Explain Why a Tilted Planet is So Cold*  
 Poster Presentation, Astronomy Undergraduate Symposium, University of Michigan, Ann Arbor, MI. April 2017.

## WORK EXPERIENCE

- Museum of Natural History, University of Michigan** 2018 - 2020  
*Docent, Planetarium*  
 · Developed and presented planetarium shows for the public, with the aim of making scientific concepts accessible and exciting for all audiences.
- Michigan Research and Discovery Scholars, University of Michigan** 2018 - 2019  
*Resident Advisor (RA)*  
 · Fostered an inclusive residential community through sustained engagement with residents.  
 · Coordinated and facilitated community events, with a focus on wellness and social justice.

## OUTREACH AND ADVOCACY

- Graduate Community Advocate** 2021 - Present  
*Department of Astronomy, University of Virginia*  
 · Promoting wellness of the graduate community through advocacy, peer support, and shared resources.
- Astro LGBTQ+ Lunch Series** 2021 - Present  
*Department of Astronomy, University of Virginia*  
 · Creating a safe and supportive meeting space for LGBTQ+ astronomers in our community.
- Diversity, Equity, and Inclusion (DEI) Committee** 2021 - Present  
*Member; Department of Astronomy, University of Virginia*
- Dark Skies, Bright Kids** 2020 - Present  
*Member; Department of Astronomy, University of Virginia*  
 · Designing and implementing outreach activities for local elementary school students.
- Astronomy Mentoring Program** 2020 - Present  
*Mentor; Department of Astronomy, University of Virginia*
- Student Astronomical Society, University of Michigan**  
*Advocacy Chair* 2019 - 2020  
*Member* 2016 - 2020
- Diversity, Equity, and Inclusion (DEI) Committee** 2017 - 2020  
*Member; Department of Astronomy, University of Michigan*

## FELLOWSHIPS AND AWARDS

- Virginia Space Grant Consortium Graduate Fellowship 2022  
 National Science Foundation Graduate Research Fellowship 2022  
*Honorable Mention*  
 University of Michigan Comparative Literature Essay Prize 2018  
*From the Basement Up: Delegitimizing White Property Rights in Invisible Man*  
 University of Michigan Honors 2017, 2020

## TEACHING EXPERIENCE

- Teaching Assistant** January 2021 - May 2021  
*Department of Astronomy, University of Virginia*  
 · Astronomy 1210: Introduction to the Sky and the Solar System  
 · Astronomy 1220: Introduction to the Stars, Galaxies, and the Universe
- Learning Assistant, Curriculum Development** January 2020 - May 2020  
*Department of Astronomy, University of Michigan*  
 · Astronomy 404: Exoplanets

## **OBSERVING PROPOSALS**

### **Atacama Large Millimeter/submillimeter Array (ALMA) Cycle 8**

- PI “Constraining Midplane Ionization With  $\text{H}_2\text{D}^+$  in TW Hya” (Awarded 13.5 hrs)
- CoI “Constraining Ionization in a Diverse Sample of Protoplanetary Disks” (Awarded 14.7 hrs)

## **SKILLS**

**Software:** Python, Bash/Unix, CASA, Latex, LIME Radiative Transfer

**Spoken Languages:** English (native), Russian (intermediate)