

# Sean DILLON, M.S.

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## CONTACT INFORMATION

University of Texas at San Antonio  
Physics and Astronomy Department  
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## EDUCATION

**University of Texas–San Antonio**, San Antonio, Texas, USA  
Doctoral Candidate in Astrophysics  
Advisor: Dr. Angela Speck  
August 2020–Present

**California State University–Chico**, Chico, California, USA  
B.S., Physics  
Minor: Mathematics  
Advisor: Dr. Nicholas Nelson  
August 2018–May 2020

## RESEARCH EXPERIENCE

### Graduate Research Assistant

**Jan 2021– Present**

Advisor: Dr. Angela Speck  
University of Texas–San Antonio, San Antonio, TX  
Modeling cosmic minerals around AGB star Rx Boo

### Research Experience for Undergraduates Internship

**May 2019 – August 2019**

Advisor: Dr. Karen Masters  
Haverford College, Haverford, PA  
Plotting correlations between neutral hydrogen and other cosmic quantities using principle component analysis techniques, a form of AI

### Undergraduate Research Assistant

**August 2018 – May 2020**

Advisor: Dr. Nicholas Nelson  
California State University–Chico, Chico, California  
Modeling solar convection around Sun-like stars

## PAPERS: REFEREED

3. Preston, Michael D.; Speck, Angela K.; **Dillon, Sean**; Sargent, B. *Unraveling the Dusty Environment around RT Vir*, Accepted to The Astrophysical Journal, arXiv: 2412.01726
2. Stark, David V.; Masters, Karen L.; Avila-Reese, Vladimir; Riffel, Rogemar; Riffel, Rogerio; Boardman, Nicholas Fraser; Zheng, Zheng; Weijmans, Anne-Marie; **Dillon, Sean**; et al. *HI-MaNGA: Tracing the physics of the neutral and ionized ISM with the second data release*, Accepted to MNRAS 2021, arXiv: 2101.12680
1. **Dillon, Sean** & 314 others, *The 16th Data Release of the Sloan Digital Sky Surveys: First Release from the APOGEE-2 Southern Survey and Full Release of eBOSS Spectra*, 2020, ApJS, 249, 1, arXiv: 1912.02905

## PROPOSALS: GRANTS

- NASA SMD Community of Practice for Education (SCoPE) 2025  
NASA Neurodiversity Network (N3), FUNDED “Sun Science for Special Ed. Students in San Antonio” , PI: Lynn Cominsky at ASU, Duration: 6 months, Budget: \$19000

CONFERENCE  
POSTERS (2019–)

7. “Crystal Math: Continuous Distributions of Ellipsoids in Radiative Transfer Models”  
**Dillon, Sean M.**; Speck, Angela K; Sargent, Beth  
Poster for The Dusty Universe: 5th Pan Dust Conference 2025, Tucson, Az
6. “Crystal Math: Continuous Distributions of Ellipsoids in Radiative Transfer Models”  
**Dillon, Sean M.**; Speck, Angela K; Sargent, Beth  
iPoster for 246<sup>th</sup> AAS Meeting 2025, Anchorage, AK
5. “Crystal Math: Modeling Distributions of Dust Grain Shapes” **Dillon, Sean M.**;  
Speck, Angela K; Sargent, Beth  
iPoster for 243<sup>rd</sup> AAS Meeting 2023, New Orleans, LA
4. “Implementing Non-Spherical Grain Shape and Size Distributions into Radiative  
Transfer Code DUSTY: Application to AGB Stars” **Dillon, Sean M.**, Speck, Angela  
K.  
iPoster for 242<sup>nd</sup> AAS Meeting 2022, Albuquerque, NM
3. “Using Radiative Transfer Modeling to Determine Nature of Dust Around RX Boo”  
**Dillon, Sean M.**, Speck, Angela K.  
iPoster for 240<sup>th</sup> AAS Meeting 2021, Pasadena, CA
2. “A Principle Component Analysis of the HI Mass Fraction of Galaxies in the MaNGA  
Survey” **Dillon, Sean M.**, Masters, K.L., Stark, D.  
Poster for the 235<sup>th</sup> AAS Meeting 2020 (Abstract 207.06), Honolulu, HI
1. “Modeling Convection in Slowly-Rotating Stars” **Dillon, Sean**, Swenson, T., Gri-  
jalva, T.,  
College of Sciences Poster Session 2019 (Abstract UF46), California State University–  
Chico, Chico, CA, USA

PROFESSIONAL  
TALKS  
(2019– )

- Feb 2024 - April 2024* “Counting Down to the Solar Eclipse” **Public Outreach** *given  
at numerous libraries and public schools*
- Oct 17, 2023* “Counting Down to the Solar Eclipse” **Public Outreach** talk in down-  
town San Antonio on the day of the solar eclipse
- Sept 2023 - Oct 2023* Getting Ready for the Solar Eclipse  
**Public Outreach** *given at numerous libraries and public schools*
- Sept 2023* “Implementing Non-Spherical Grain Shape and Size Distributions into Ra-  
diative Transfer Code DUSTY: Application to AGB Stars”  
**Qualifying Exam** advanced to candidacy
- Aug 2023* “Stars the Size of San Antonio”  
**Astronomy on Tap** talk at Blue Star Brewing Company, San Antonio, Texas
- Nov 2019* “ A Principle Component Analysis of the HI Mass Fraction of Galaxies in  
the MaNGA Survey”  
**Contributed** 2019 Annual Meeting of the American Physical Society Far West  
Section  
**Dillon, Sean M.**, Masters, K.L., Stark, D.  
(Abstract E03.00010), Stanford University, Menlo Park, CA
- Oct 2019* “ A Principle Component Analysis of the HI Mass Fraction of Galaxies in the  
MaNGA Survey”

**Invited** Annual Meeting of Keck Northeast Astronomy Consortium (KNAC),  
Vassar College, Poughkeepsie, New York

PROFESSIONAL  
WORKSHOPS

*June 2024 Hispanic Serving Research Universities* in San Antonio, TX. Volunteered coordinating registration and introducing speakers.

*Sept 2023 Solar Eclipse Planning Workshop* in San Antonio, TX in collaboration with the Scobee Education Center at San Antonio College to plan for the 2023 and 2024 solar eclipses and how we can engage the public by talking about the eclipse.

*Jun 2023 Solar Eclipse Planning Workshop* in Albuquerque, NM in collaboration with *New Mexico Museum of Natural History and Science* to plan for the 2023 and 2024 solar eclipses and how we can engage the public by talking about the eclipse.

*Jan 2020 Using Python to Search NASA's Astrophysics Archive* workshop at the 235<sup>th</sup> AAS Meeting to understand how python can be used for direct data analysis.

RESEARCH  
INTERESTS

- Modeling dust around AGB stars
- Evolution of chemical abundances around galaxies
- Computational astrophysics and data analysis in Python