

# Sierra L. Grant, Ph.D.

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## Current Employment

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**Max Planck Institute for Extraterrestrial Physics** **09/2021–Current**  
*Postdoctoral Researcher*  
 Supervisor: Prof. Ewine F. van Dishoeck

## Education

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**Boston University** **05/2017–08/2021**  
*Ph.D.*

Advisor: Prof. Catherine C. Espaillat

“Protoplanetary Disk Evolution: From Inner Disk Accretion to Outer Disk Dust Evolution”

**Boston University** **09/2015–05/2017**  
*M.A.*

Advisor: Prof. Catherine C. Espaillat

**University of Michigan** **09/2011–05/2015**

*B.S. Astronomy & Astrophysics and B.S. Interdisciplinary Physics*

Advisor: Prof. Nuria P. Calvet

## Research Interests

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I study protoplanetary disks which are disks of gas and dust that surround young stars and are the birth places of exoplanets. Specifically, I focus on the inner disk structure and how populations of disks evolve. I use models and observations, with data from space-based (including *Spitzer* and *Herschel*) and ground-based telescopes (including the VLT, Lowell Discovery Telescope, Gemini South, NASA's IRTF, and ALMA), to characterize these protoplanetary disks and their evolution.

## Honors and Awards

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2020	ALMA Student Observing Support (\$33,148)
Fall 2015	Dean's Fellowship
Fall 2011, 2013, & Spring 2014	University Honors

## Presentations

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03/2021	Caltech Tea Talk – <b>Invited Talk</b>
12/2020	Five years after HL Tau: a new era in planet formation – <b>Contributed Talk</b>
12/2018	Star and Planet Formation Lunch Talk, Amherst, MA – <b>Invited Talk</b>
07/2018	Cool Stars 20, Boston, MA – <b>Poster</b>
01/2018	The 4th MA-CT Regional Star Formation Meeting, Boston, MA – <b>Contributed Talk</b>

## Presentations (cont.)

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- 12/2017 Boston Area Exoplanet Science Meeting, Cambridge, MA – **Contributed Talk**
- 01/2017 Regional Star Formation Meeting, New Haven, CT – **Contributed Talk**
- 06/2015 Frontiers in Star Formation: Celebrating Contributions to the Field by Nuria Calvet and Lee Hartmann, Ann Arbor, MI – **Invited Talk**
- 01/2015 225th American Astronomical Society Meeting, Seattle, WA – **Poster**
- 02/2014 Scientista Symposium, Massachusetts Institute of Technology, Cambridge, MA – **Poster**
- 2013, 2014, & 2015 Undergraduate Research Presentation, University of Michigan, Ann Arbor, MI – **Poster**

## Publications

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### Peer Reviewed:.....

- 01/2022 "*Accretion Properties in Herbig Ae/Be Stars as Traced by the Br $\gamma$  Line*"  
**Sierra L. Grant**, Catherine C. Espaillat, Sean Brittain, Caleb Scott-Joseph, Nuria Calvet
- 06/2021 "*An ALMA Survey of Protoplanetary Disks in Lynds 1641*"  
**Sierra L. Grant**, Catherine C. Espaillat, John Wendeborn, John J. Tobin, Enrique Macías, Anneliese Rilinger, Álvaro Ribas, S. Thomas Megeath, William J. Fischer, Nuria Calvet, Kyoung Hee Kim  
ApJ, 913, 123
- 01/2019 "*Using Multiwavelength Variability to Explore the Connection among X-Ray Emission, the Far-ultraviolet H $_2$  Bump, and Accretion in T Tauri Stars*"  
C. C. Espaillat, C. Robinson, **S. Grant**, M. Reynolds  
ApJ, 876, 121
- 08/2018 "*Herschel Observations of Protoplanetary Disks in Lynds 1641*"  
**Sierra L. Grant**, Catherine C. Espaillat, S. Thomas Megeath, Nuria Calvet, William J. Fischer, Christopher J. Miller, Kyoung Hee Kim, Amelia M. Stutz, Álvaro Ribas, Connor E. Robinson  
ApJ, 863, 13

### Other Publications:.....

- 03/2014 "*A Month of Personal Transformation at Kitt Peak*"  
**Sierra L. Grant**  
NOAO Newsletter, Issue 109, March 2014

## Accepted Observing Proposals

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### As PI:.....

- 2021 NOEMA (13.5 hours, ranked "B", Co-PI)  
"Orion's hunting grounds: The first unbiased mass census of Herbig Ae/Be disks"  
**Sierra Grant**, Michiel R. Hogerheijde, Lucas Stapper, Ewine F. van

## Accepted Observing Proposals (cont.)

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As PI:.....	
2021	Dishoeck, Sierk van Terwisga, Alice Booth VLT-CRIFRES+ (1.4 hours, Science Verification, not observed) “Probing the impact of dust cavities on the gas distribution in intermediate-mass stars” <b>Sierra Grant</b> , Carlo Manara, Ewine van Dishoeck, Giulio Bettoni, Melissa McClure
2020	Gemini South Observatory (17 hours in 2020A, 7.7 hours in 2020B) “Accretion onto Intermediate-mass Stars” <b>Sierra Grant</b> , Catherine Espaillat, Sean Brittain, Nuria Calvet
2019	ALMA (Cycle 7, 2019.1.00951.S) “Characterizing Protoplanetary Disks in the Orion L1641 Region” <b>Sierra Grant</b> , Catherine Espaillat, Kyoung Hee Kim, Enrique Macías, Álvaro Ribas, Tom Megeath, Nuria Calvet, John Tobin
2019 & 2020	NASA Infrared Telescope Facility (3 half-nights each in 2019B and 2020A) “Accretion onto Intermediate-mass Stars” <b>Sierra Grant</b> , Catherine Espaillat, Sean Brittain, Nuria Calvet
2017 & 2018	Lowell Discovery Telescope, Lowell Observatory (10 half-nights) “Probing Gas and Dust in the Sites of Planet Formation” <b>Sierra Grant</b> , Catherine Espaillat
As Co-I:.....	
10/2017	<i>Hubble Space Telescope</i> (6 orbits) & <i>Chandra X-ray Observatory</i> (35ks) & VLA (9.6 hours) "Connecting Mass Accretion and Ejection in Pre-main Sequence Stars" Catherine Espaillat, Jesús Hernández, <b>Sierra Grant</b> , Enrique Macias, Mark Reynolds, Connor Robinson
10/2015	<i>Spitzer Space Telescope</i> (Proposal ID #12036) “Footprints of the Magnetosphere: the Star-Disk Connection in T Tauri Stars” Catherine Espaillat, <b>Sierra Grant</b> , Jesus Hernandez, Nuria Calvet Coordinated with the <i>Hubble Space Telescope</i> and the The Neil Gehrels <i>Swift</i> Observatory for simultaneous observations

## Affiliations and Outreach

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11/2021 – Current	Planet Formation Witnesses and Probes: Transition Disks Research Unit
09/2021 – Current	Inclusion, Diversity, and Equity in European Astronomy (IDEEA)
09/2015 – 08/2021	Women as Leaders in Astronomy (Boston University)
09/2015 – 08/2021	Boston University Astronomy Public Open Nights
09/2018 – 05/2019	Letters to a Pre-Scientist Pen Pal
09/2011 – 05/2015	Student Astronomical Society
09/2011 – 05/2012	Douglass Houghton Scholars Program
09/2011 – 05/2012	Women in Science and Engineering Residency Program
06/2010	Michigan Technological University Women in Engineering Program

## Leadership

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09/2018 – 08/2021 Women as Leaders in Astronomy Organizer  
09/2018 – 08/2019 Graduate Student Representative

## Mentored Students

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10/2021 – Current **Giulio Bettoni:** Giulio is a Leiden University Ph.D. student who is working with me at MPE in Garching. Giulio's focus is on chemistry in the inner regions of protoplanetary disks.  
06/2018 – 08/2019 **Caleb Scott-Joseph:** Caleb was a high school student at Boston University Academy who I mentored to analyze high-resolution, near-infrared spectra of protoplanetary disks.

## Workshops

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12/2017 JWST Proposal Planning Workshop, Pasadena, CA  
03/2016 NRAO Live! ALMA Proposal Workshop at Boston University, Boston, MA

## Teaching

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Spring 2016 AS 203: Principles of Astronomy II Teaching Assistant