

# Jodi R. Berdis

GRADUATE RESEARCH ASSISTANT · NASA JENKINS GRADUATE FELLOW

Astronomy Department, New Mexico State University, Las Cruces, NM, USA

☎ (214) 578-8343 | ✉ jodiberdis@gmail.com | 🌐 <http://astronomy.nmsu.edu/berdis>

## Education

### New Mexico State University

PH.D. IN ASTRONOMY

- Dissertation advisors: Drs. Jim Murphy and Nancy Chanover
- Dissertation title: Investigation of Crystalline and Amorphous H<sub>2</sub>O-Ice Across the Solar System: Implications for Physical and Geomorphological Processes on Icy Surfaces

M.S. IN ASTRONOMY

### University of Oklahoma

B.S. IN ASTROPHYSICS

- Minor in History of Science
- Thesis advisor: Dr. John Wisniewski
- Thesis title: Spectropolarimetric Observations of the Accreting Binary System V356 Sagittarii

Las Cruces, NM

Aug. 2015 - Exp. Dec. 2020

May 2018

Norman, OK

Aug. 2010 - May 2015

## Skills

**Programming** Python (expert), C (intermediate), IDL (intermediate), LaTeX (expert), HTML (intermediate), Wordpress (expert)

**Interpersonal** Leadership, Teamwork-Oriented, Collaborative, Event Planning

**Other** Problem Solving, Organization, Time Management, Self-Motivation

## Professional Appointments

### NASA ASTAR Harriett G. Jenkins Graduate Fellow

ASTRONOMY DEPT, NEW MEXICO STATE UNIVERSITY & NASA JET PROPULSION LABORATORY

- Fellowship title: "Investigation of the Varying Structures of H<sub>2</sub>O-Ice Across the Solar System: Implications for Physical Processes on Icy Bodies"
- Near-infrared spectroscopic analysis of crystalline and amorphous water ice on Europa's leading hemisphere using both laboratory data and ground-based observations.
- Thermodynamical and radiation modeling of Europa's surface water ice crystallinity to provide constraints on the effects of thermal and radiative processes on surface water ice crystallinity.
- Compositional analysis of Europa's equator and south pole on the leading hemisphere using Galileo NIMS hyperspectral image cubes and a spectral mixture analysis to identify the spatial distribution of salts, acids, and crystalline and amorphous water ice.

Las Cruces, NM & Pasadena, CA

Sep. 2017 - Dec. 2020

### PDS Atmospheres Node Assistant

NASA PLANETARY DATA SYSTEM (PDS) ATMOSPHERES NODE, NEW MEXICO STATE UNIVERSITY

- Developed multiple Python programs to convert Earth dust devil field campaign data into a uniform format (column width, delimiter, removal of erroneous characters, etc.) which could then be ingested into the PDS4 repository.
- Created XML PDS context products to correspond with each dataset in the above Earth dust devil archive.

Las Cruces, NM

Summers 2016 & 2017

### Graduate Research Assistant

ASTRONOMY DEPT, NEW MEXICO STATE UNIVERSITY

- Tracking of the spatial and temporal water vapor abundance above craters with identified recurring slope lineae (RSL) features from Mars-orbiting spacecraft over several Martian years.
- Simulation of water frost deposits within craters using an atmospheric circulation model to provide upper limits on RSL-produced atmospheric water vapor content.

Las Cruces, NM

Aug. 2015 - Aug. 2017

### Graduate Teaching Assistant

ASTRONOMY DEPT, NEW MEXICO STATE UNIVERSITY

- Astronomy 110 (Introduction to Astronomy) Distance Education Lab: one semester
- Astronomy 105 (The Planets) Lab: three semesters

Las Cruces, NM

Aug. 2015 - Aug. 2017

## Publications

---

3. Berdis, J.R., Gudipati, M.S., Murphy, J.R., Chanover, N.J., Europa's surface water ice crystallinity: Discrepancy between observations and thermophysical and particle flux modeling (2020), *Icarus*, 341, 113660.
2. Lomax, J.R. ... Berdis, J.R. et al. The Complex Circumstellar and Circumbinary Environment of V356 Sgr (2017), *MNRAS*, 464, 1936.
1. Davenport, J.R.A. ... Berdis, J.R. et al. Kepler Flares II: The Temporal Morphology of White-Light Flares on GJ 1243 (2014), *ApJ*, 797, 122.

## Presentations and Conference Abstracts

---

15. Berdis, J.R., Murphy, J.R., Chanover, N.J., Gudipati, M.S. Presence of Amorphous Water Ice on Europa's Leading Hemisphere at the Equator and South Pole. *52nd Division for Planetary Sciences Meeting*, Oct. 2020, [Talk].
14. Berdis, J.R. Europa's Surface Composition. *Lunar and Planetary Institute Early Career Virtual Networking Event*, Apr. 2020, [Talk].
13. Berdis, J.R., Gudipati, M.S., Murphy, J.R., Chanover, N.J. Europa's surface water ice crystallinity: Discrepancy between observations and thermophysical and particle flux modeling. *Europa Clipper Composition Working Group Meeting*, Apr. 2020, [Talk].
12. Berdis, J.R., Gudipati, M.S., Murphy, J.R., Chanover, N.J. Europa's Observed Crystallinity Inconsistent with Thermophysical and Particle Flux Modeling. *51st Lunar and Planetary Science Conference*, Mar. 2020, [Poster].
11. Berdis, J.R., Chanover, N.J., Murphy, J.R., Gudipati, M.S. Europa's Surface Water Ice Crystallinity: Discrepancy Between Observations and Thermophysical and Particle Flux Modeling. *35th New Mexico Symposium*, Feb. 2020, [Talk].
10. Hedlund, A., Berdis, J., Kovac, S., Chanover, N., Prescott, M., Imig, J., Villicana Pedraza, I. Recent Initiatives to Promote Diversity, Equity, and Inclusion in the New Mexico State University Astronomy Department. *Inclusive Astronomy 2 Conference*, Oct. 2019, [Poster].
9. Berdis, J.R., Chanover, N.J., Murphy, J.R., Gudipati, M.S. Surface Water Ice Crystallinity of Europa's Leading Hemisphere on a Regional Scale. *51st Division for Planetary Sciences / 14th European Planetary Science Congress Meeting*, Sep. 2019, [Poster].
8. Berdis, J.R., Gudipati, M.S., Murphy, J.R., Chanover, N.J. The Tale of the Unusual Water Ice Crystallinity. *Europa Clipper Lecture Series*, Aug. 2019, [Talk].
7. Berdis, J.R., Chanover, N.J., Gudipati, M.S., Murphy, J.R. Discrepancies Between the Modeled and Observed Surface Water Ice Crystallinity of Europa's Leading Hemisphere. *50th Lunar and Planetary Science Conference*, Mar. 2019, [Poster].
6. Berdis, J.R., Chanover, N.J., Gudipati, M.S., Murphy, J.R. Assessing the Crystallinity of Water Ice on Europa's Leading Hemisphere. *34th New Mexico Symposium*, Nov. 2018, [Poster].
5. Berdis, J.R., Chanover, N.J., Gudipati, M.S., Murphy, J.R. Assessing the Crystallinity of Water Ice on Europa's Leading Hemisphere. *50th Division for Planetary Sciences Meeting*, Oct. 2018, [Poster].
4. Berdis, J.R., Murphy, J.R., Wilson, R.J. Constraining the Surficial Liquid Water and Resulting Atmospheric Water Vapor Abundance at Recurring Slope Lineae (RSL) Locations on Mars. *49th Division for Planetary Sciences Meeting*, Oct. 2017, [Poster].
3. Berdis, J.R., Feuillet, D., Steakley, K., Schonfeld, S., Chanover, N. Inclusive Astronomy at New Mexico State University. *Women in Astronomy IV Conference*, Jun. 2017, [Poster].
2. Berdis, J.R., Murphy, J.R., Wilson, R.J. Assessment of Atmospheric Water Vapor Abundance Above Recurring Slope Lineae Locations on Mars. *32nd New Mexico Symposium*, Nov. 2016, [Poster].
1. Berdis, J.R., Murphy, J.R., Wilson, R.J. Assessment of Atmospheric Water Vapor Abundance Above Recurring Slope Lineae Locations on Mars. *48th Division for Planetary Sciences / 11th European Planetary Science Congress Meeting*, Oct. 2016, [Poster].

## AAS DPS Professional Culture & Climate Subcommittee

### MEMBER

- Implement and/or recommend actions within the DPS to promote inclusivity and diversity in the professional community.

AAS DPS  
Nov. 2020 - PRESENT

## Europa Clipper Project Science Group-9 Meeting

### OBSERVER

- Participant in the first Observer Program for ongoing mission science teams and became immersed in the mission science development process.

Virtual  
Sep. 2020

## Planetary Science Summer School

### PROJECT MANAGER

- Develop a concept study for a New Frontiers-class Enceladus multiple-flyby mission and present study package to review panel.
- Design a full science traceability matrix and engineering/mission requirements assisted by NASA JPL's Team-X.
- Track risk mitigation and monitor budget constraints between science and engineering leads, and ensure fair task delegation.

Virtual  
May - Jul. 2020

## Astronomy Graduate Student Organization (AGSO)

### YEAR-LONG POSITIONS

- Webmaster (2020-2021): Improve and maintain AGSO pages on the NMSU Astronomy website to provide information and resources for other graduate students, including guides on our telescopes and outreach materials, funding & reimbursement procedures, taxes & residency, etc.
- Vice President / Outreach Coordinator (2019-2020): Coordinate community service events for fellow astronomy graduate students and facilitate communication between volunteers and event organizers.
- Treasurer (2018-2019): Provide information to fellow astronomy graduate students on funding opportunities through the university, and plan the annual astronomy graduate student retreat.
- **President** (2017-2018): Lead AGSO meetings (one per two weeks), serve as graduate student voice at faculty meetings, provide bridge of communication between astronomy graduate students and faculty members.
- Extracurricular Activities Organizer (2016-2017): Coordinate, plan, and inform fellow astronomy graduate students of extracurricular events.

New Mexico State University  
Aug. 2016 - PRESENT

## Inclusive Astronomy

### GROUP FACILITATOR

- Organize and facilitate discussions during weekly meetings.
- Point of contact for communications between group and other members of department.

New Mexico State University  
Aug. 2016 - PRESENT

## NMSU Fair Institutional Graduate Health and Tuition

### CO-FOUNDER AND CENTRAL COMMITTEE MEMBER

- Facilitate discussions between fellow graduate students and university administration to encourage subsidization of graduate tuition and health insurance.
- Develop and maintain the group's website, recruit graduate students to join our efforts, and lead/facilitate weekly meetings.

New Mexico State University  
Apr. 2019 - PRESENT

## NASA Review Panels

### EXECUTIVE SECRETARY

- Served three times as panel scribe, group assistant, vote tracker, and reviewer.

Redacted  
2019-2020

## 'Out In Space' Podcast

### CO-HOST

- A project of interviews with LGBT+ professionals in astronomy as an inspirational resource for early career LGBT+ astronomers.
- Contact, introduce, discuss issues, and publish online our interviews with LGBT+ astronomy professionals.

Virtual  
Nov. 2019 - PRESENT

## Spectrum (LGBTQIA+ Employee Resource Group)

### CO-DEPUTY COORDINATOR FOR SUMMER INTERNS

- Planned and coordinated social and networking events for fellow JPL interns.
- Aided the integration of interns and full-time employees in Spectrum through lunchtime, evening, and weekend events.

*Jet Propulsion Laboratory (JPL)*

*Summers 2019, 2020*

## Sloan Digital Sky Survey (SDSS) Research Experience for Undergraduates

### PROGRAM ASSISTANT / BOOT CAMP CO-COORDINATOR

- Aided in the planning of activities and providing general assistance during a week-long boot camp for SDSS REU students, which included a crash-course to SDSS astronomy, research and presenting skills/tools, and a trip to Apache Point Observatory, which houses the 2.5 m SDSS telescope.
- Continued communication with the REU students during the summer in the form of weekly virtual meetings to conduct professional development seminars and discuss research progress.

*New Mexico State University*

*May 2016 - August 2016*

## Community Outreach

---

Mar. 2020	APO Open House	<i>Apache Point Observatory</i>
Feb. 2020	Pluto and Tombaugh Legacy	<i>NMSU Zuhl Library</i>
Nov. 2019	Stargazing Party	<i>Acton Academy</i>
Nov. 2019	Mercury Transit	<i>NMSU Frenger Mall</i>
Oct. 2019	Stargazing Party	<i>NMSU Pinon Hall</i>
May 2019	Desert Trail Elementary Field Trip	<i>Tombaugh Observatory</i>
Apr. 2019	STEAM Night Sonoma Elementary	<i>Sonoma Elementary</i>
Feb. 2019	Stargazing Science Night	<i>Tombaugh Elementary</i>
Feb. 2019	Science Fair Judging	<i>Tombaugh Elementary</i>
Jan. 2019	Lunar Eclipse Night	<i>Tombaugh Observatory</i>
Dec. 2018	STEM Night	<i>Loma Linda Elementary</i>
Sep. 2018	Las Cruces Heritage Festival	<i>Cruces Creatives</i>
Mar. 2018	Math & Science Night	<i>Highland Elementary</i>
Jun. 2017	Astronomy Talk	<i>North Texas Job Corps Center</i>
Apr. 2017	Relay Race Star Party	<i>Spaceport America</i>
Apr. 2017	Star Party	<i>Monte Vista Elementary</i>
Nov. 2016	Astronomy Talk	<i>North Texas Job Corps Center</i>
Nov. 2016	Tombaugh Reunion Night	<i>Tombaugh Observatory</i>
Feb. 2016	Solar Astronomy Viewing	<i>Las Cruces Farmer's Market</i>
Oct. 2015	Solar Astronomy Viewing	<i>Las Cruces Farmer's Market</i>