

Nathalie K. Jones

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Education

Northwestern University

Ph.D. Student, Astronomy

Evanston, IL

September 2022 - Present

Bard College

B.A., Physics Major

Annandale-on-Hudson, NY

August 2017 - May 2021

[Senior Project Thesis](#): “Brightening of the Bridge: Reflections of a Past Sgr A* Outburst in Galactic Center Molecular Clouds”

Research Experience

Candidate Companions and Survey Statistics for the Gemini Planet Imager

April 2024 - Present

Northwestern University & Center for Interdisciplinary Research

and Exploration in Astrophysics (CIERA)

Advisor: Jason Wang

- Create master detection table, categorize detected objects, select candidate threshold, astrometry and spectral extraction of candidates.
- Perform astrometric and spectral extraction using `pyKLIP` package.
- Develop spectral fitting `Python` routine, compare template spectra (SpeX Prism Library, PHOENIX) to Gemini Planet Imager Exoplanet Survey (GPIES) data to spectroscopically characterize detected objects.

Nebular Emission Line Diagnostics of $z \sim 0.7$ Pathfinder Galaxy Sample

January - September 2023

Northwestern University & CIERA

Advisor: Allison Strom

- Developing custom spectral fitting `Python` script in order to analyze pathfinder observations of $z \sim 0.7$ galaxies.
- Collect information on similar spectroscopic surveys, including data availability; Access archival data.
- Creating emission diagnostic diagrams for new MOSFIRE observations, including N2BPT, S2BPT, Mass-Excitation Diagram, and Stellar Mass (M_*) vs. $[NII]/H\alpha$.

Monitoring the Bridge Molecular Cloud Over 20-years

September 2021 - June 2022

Bard College Physics Program, Post-Baccalaureate Researcher

Advisor: Shuo Zhang

- Analyze and access archival XMM-Newton observations of the “Bridge” cloud in order to supplement NuSTAR data.
- Fit models to X-ray spectra.
- Produce images, plots for publication.
- Write paper draft for submission in ApJ.

X-Ray Reflections in Galactic Center Molecular Clouds

July 2020 - May 2021

Bard College, Senior Thesis Project

Advisors: Shuo Zhang, Matthew Deady

	<ul style="list-style-type: none"> Analyzing new and archival data from the Nuclear Spectroscopic Telescope Array (NuSTAR) of Galactic Center Molecular Cloud “Bridge”. Creating plots of X-Ray brightening trends of the Bridge Cloud over 8 years. Writing senior thesis. 	
Professional Experience	<p>Program Coordinator; CIERA REACH 2024, 2025</p> <ul style="list-style-type: none"> Plan and schedule Astro 101 lectures, activities, and panels. Recruit volunteer presenters, activity leaders. Manage students and volunteers. Facilitate talks, program transitions, and daily schedule to ensure program runs successfully. Present Astro 101 talks, lead activities such as ‘Ask me anything’ panel and ‘Introduction to Cosmology’. Utilize and manage Google Drive materials including presentations, schedules and student resources. <p>Virtual Summer Camp Instructor; <i>Lavner Education, Philadelphia</i> 2021</p> <ul style="list-style-type: none"> Instruct students ages 6-13 in wide range of STEM related topics, including: Coding in Scratch and Python, Math Olympics and Virtual Science Lab camps, advanced gameplay and worldbuilding in Minecraft, Roblox, and Kerbal Space Program. Full-time instructor over Zoom. 	
Other Teaching Experience	<p>Teaching Assistant: PHYS 136-2 & 3, 2024 - 2025 <i>Northwestern University</i></p> <p>Planetary Astrophysics: ASTRON 314/414 Grader, 2025 <i>Northwestern University</i></p> <p>Introduction to Physics II Tutor, <i>Bard College</i> 2020</p> <p>Global Energy Tutor, <i>Bard College</i> 2020</p>	
Outreach & Leadership	<p>Indigenous Graduate Student Collective President; May 2025 - Present <i>Northwestern University</i></p> <p>CIERA Astronomer Evening Lecturer; Dearborn Observatory March 2025</p> <p>DEI, Teaching Assistant Committees; Northwestern PAGSC 2024 - Present</p> <p>Annual Public Lecture Volunteer; CIERA 2024</p> <p>Astronomy Night Out Volunteer; CIERA 2023, 2024</p> <p>Activity Leader; CIERA REACH 2023</p> <p>Physics Club President; <i>Bard College</i> 2021</p>	
Mentorship	<p>Christopher Hays & Warit Wjitworasart; 2024 - 2025 <i>Physics Masters Students</i></p> <p>Northwestern PAGSC Mentorship Program</p>	
Selected Posters & Presentations	<p>The Gemini Planet Imager Exoplanet Survey:</p> <p>Analysis of Candidate Companions</p> <p><i>Poster; Accepted, October 2025; 51 Peg b 30th Birthday Conference, Observatoire de Haute-Provence</i></p>	

GPIES Candidate Companions & Observational Astronomy in Hawaii

Presentation; May 2025; CIERA Observers Meeting

GPIES Candidates Update & Prelim. Analysis

Presentation; November 2024; GPI Data Telecon

Observing and Understanding Intermediate z Galaxies and Star Formation History

Presentation; March 2023; CIERA Observers Meeting

Brightening of the Bridge: Reflections of a Past Sgr A* Outburst in Galactic Center Molecular Clouds

Virtual Presentation; May 2022; [ASNY Undergraduate Writing Prize Talk](#)

Reflections: Reprocessed X-Ray Emission in the Galactic Center and Life After Bard

Undergraduate Seminar; April 2022; [Bard College Department of Physics](#)

20-Year-Long Time Variability of Galactic Center Molecular Cloud “Bridge” Revealed by NuSTAR and XMM-Newton

iPoster; January 2022; #239 AAS Conference

Continuing Brightening of a Sgr A Complex Molecular Cloud: Revealing More Details about Past Sgr A* Activities,

iPoster; June 2021; #238 AAS Conference

Press Releases

Shuo Zhang, **Nathalie Jones**, & Field Rogers, *Giant Molecular Clouds: Storytellers of the Galactic Center’s History in the Past Few Hundred Years*; [#239 AAS Conference](#)

Awards & Honors

UN CIFAL/NSF Certificate of Completion, GIS for Sustainability and Resilience in the Pacific, Foundations Course	2024
<i>Chaminade Univeristy, Honolulu</i>	
NSF ALL-SPICE Alliance Scholarship (\$1500),	2024
<i>Chaminade University, Honolulu</i>	
Undergraduate Writing Prize (\$500), Astronomical Society of New York	2022
Fulbright Scholarship Alternate	2021
Bard Scholarship, Bard College	2017 - 2021
Bard Summer Research Institute Scholarship, Bard College	2019 & 2020

Computer Skills

- Programming: Python, bash.
- Software, Tools, & Packages: pyKLIP, AstroPy, splat, Jupyter, DS9.