

JAMILA PEGUES

STScI Postdoctoral Fellow at the Space Telescope Science Institute (STScI)

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POSTDOCTORAL TERMS

STScI Postdoctoral Fellow

September 2021

Space Telescope Science Institute, Baltimore, MD, USA

EDUCATION

Harvard University, Cambridge, MA, USA

September 2016 - May 2021

Ph.D in Astronomy & Astrophysics

Master of Science in Computational Science and Engineering

Princeton University, Princeton, NJ, USA

September 2012 - May 2016

Bachelor of Arts in Astrophysical Sciences

Certificate of Proficiency in Applications of Computing

Certificate of Proficiency in Robotics and Intelligent Systems

TECHNICAL SKILLS

Computer Languages

Python, Java, MATLAB, R

Software & Tools

LaTeX, GitHub | CASA

Linguistic Languages

English (*Fluent*) | Japanese (*Intermediate*)

FOCUSES AND INTERESTS

Astrophysics

Protoplanetary disks, planet formation, astrochemistry

Computer Science

Programming, applications, software development

Artificial Intelligence

Utility, logic and decision-making, intelligent design

Outreach

Equity and inclusion, science communication, informal education

RESEARCH EXPERIENCE

First-Author Publications

- *An ALMA Survey of H₂CO in Protoplanetary Disks*

J. Pegues, K. I. Öberg, J. B. Bergner, et al.

Published in ApJ February 2020.

- *Dynamical Masses and Stellar Evolutionary Model Predictions of M-Stars*

J. Pegues, I. Czekala, S. M. Andrews, et al.

Published in ApJ February 2021.

- *An ALMA Survey of Chemistry in Disks around M4-M5 Stars*

J. Pegues, K. I. Öberg, J. B. Bergner, et al.

Published in ApJ April 2021.

Research/First-Author Papers in Progress

- *An SMA Survey of Chemistry in Disks around Herbig Ae/Be Stars*

Adviser: Dr. Karin Öberg

Currently wrapping up a survey of millimeter-wavelength emission from small carbon, oxygen, and nitrogen-bearing molecules toward a sample of 5 disks around Herbig Ae/Be stars. These observations were conducted using the Submillimeter Array (SMA).

- ***Astrochemical M-Star Disk Models***

Adviser: Dr. L. Ilseidore Cleeves, Dr. Karin Öberg

Currently developing fiducial astrochemical models of M-star protoplanetary disks. Will describe how the chemistry of a typical M-star disk evolves as a function of radius, height, and time. Will systematically vary the parameters of this model to determine how M-star disk chemistry depends on initial conditions. Will compare chemistry between M-star disk models and solar-type disk models.

EXTERNAL CODING AND SOFTWARE EXPERIENCE

- ***Interpolation as an Asset to Ray-Tracing***

Master of Science independent semester research project at Harvard University: spring 2020

Primary Adviser: Dr. Cecilia Garraffo

- ***Python Redesign and Optimization of RADLite***

Software development/modeling summer internship at STScI: summer 2019

Adviser: Dr. Klaus Pontoppidan

- ***Python Auto-Differentiation Package***

Semester software development project at Harvard University: fall 2018

Associated graduate course: ‘Systems Development for Computational Science’

RELEVANT GRADUATE COURSE WORK

Astronomy Courses

Radiative Astrophysics

Stellar Astrophysics

Noise & Data Analysis in Astrophysics

Interstellar Medium & Star Formation

Radio Astronomy

Computer Science Courses

Advanced Machine Learning

Advanced Optimization

Systems Development (Software Development)

Computing Foundations (Parallelization)

Advanced Scientific Computing: Numerical Methods

TALKS, CONFERENCES, AND AWARDS

- *5 Years after HL Tau Conference*: contributed a research talk on December 7, 2020. Remote conference, hosted by the ESO, NRAO (NAASC+ngVLA), and ALMA in Chile.
- *UChicago Exoplanet Journal Club Seminar*: gave a virtual research seminar on November 16, 2020. Remote seminar, hosted by the astronomy and geophysics departments at the University of Chicago, IL, USA.
- *UCSC Planetary Lunch Seminar*: gave a virtual research seminar on November 9, 2020. Remote seminar, hosted by the astronomy and planetary science departments at the University of California Santa Cruz, CA, USA.
- *Origins Seminar Series*: gave a virtual research seminar on September 14, 2020. Remote seminar, hosted by the astronomy departments at the University of Arizona, AZ, USA.
- *Astrochemical Frontiers Conference*: gave a virtual research talk on June 15, 2020. Remote conference, hosted by the IAU Commission H2 Steering Committee.
- *American Astronomical Society 235th Meeting*: gave a talk on January 8, 2020. HI, USA.
- *CfA Exoplanet Lunch*: gave a research talk on December 3, 2019. Center for Astrophysics | Harvard & Smithsonian, MA, USA.
- *STScI Exoplanet/Stars and Planet Formation Seminar*: gave a research seminar on August 12, 2019. Space Telescope Science Institute, MD, USA.
- *International Astronomical Union Symposia (IAUS) 332*: presented a research poster in March 2017. Puerto Varas, Chile.

- *NSF GRFP Fellowship Award*: was honored with the 5-year National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) Fellowship.
- *Peirce Fellowship Award*: was honored with the Peirce Fellowship from the Harvard University Department of Astronomy.

VOLUNTEERING AND OUTREACH (NON-EXHAUSTIVE LIST)

- Organizing Committee Member for the ComSciCon 2020 Conference: June 2020
- Organizing Committee Member for the Equity and Inclusion Journal Club: spring 2019, spring 2020
- Volunteer for Cambridge Explores the Universe: April 2017, 2018, 2019
- Writer and Editor for Astrobites: January 2017 - December 2018
- Academic/Peer Mentor for the Banneker and Aztlán Institute: summer 2017, summer 2018
- GSAS-OLAH Team Member: Spring 2017