

Jacob Hamer

3925 Beech Ave #305, Baltimore, MD 21211 · (516) 724-1005 · jhamer3@jhu.edu

Education

- Johns Hopkins University**, MA and PhD in Astronomy and Astrophysics 2017 – Present
MA Conferred May 2019, PhD Expected July 2022, Advisor: Kevin Schlaufman
- CUNY Macaulay Honors College at Hunter College**, BA in Mathematics and BA in Physics 2013 – 2017
Summa Cum Laude

Research Experience

- Doctoral Candidate**, Johns Hopkins University, Baltimore, MD 2017 – Present
Work with Dr. Kevin Schlaufman using exoplanet host star kinematics as a proxy for relative age, using this method to answer unsolved problems related to the tidal evolution of exoplanets
- Intern**, NASA Glenn Research Center, Cleveland, OH Spring 2021
*Worked to improve the reproducibility and interpretability of machine learning experiments
Processed data from the GOES satellite and applied data management best practices*
- Research Intern**, American Museum of Natural History, New York, NY 2014 – 2017
Worked under Dr. Ariyeh Maller analyzing outputs of semi-analytic models of galaxy populations
- Research Intern**, National Solar Observatory, Tucson, AZ Summer 2016
Worked with Dr. Brian Harker, analyzing spectropolarimetric data to infer solar magnetic fields

Management Experience

- Mentor**, Johns Hopkins University, Baltimore, MD Summer 2021
Advised an undergraduate intern in the production of a planetarium show on exoplanet detection methods
- Head Teaching Assistant**, Johns Hopkins University, Baltimore, MD 2018-2019
Managed over 20 graduate teaching assistants and instructed them in pedagogical best practices

Outreach Experience

- Mentor**, JHU Department of Physics and Astronomy, Baltimore, MD Summer 2021
Mentored a JHU undergraduate student in the production of a planetarium show on the detection of exoplanets via the transit method and the Doppler method, available below
[Wobbling and Winking Stars: The Hunt for Exoplanets](#)
- Observatory Fellow**, Maryland Space Grant Consortium, Baltimore, MD 2019 – 2020
*Led weekly public open houses at the Morris W. Offit Telescope
Contributed to a public outreach event at Morgan State University, with a demonstration on spectroscopy
Authored blog posts with interactive data visualizations on tidal evolution, stellar astrophysics, and transit detection of exoplanets, available on ObservableHQ below*
[The Days are Getting Longer, and the Moon is Getting More Distant](#)
[What Can We Learn About Stars from an Image of a Star Cluster?](#)
[Tides in Hot Jupiter Systems](#)
[Detecting Exoplanets with Transits](#)
- Contributor**, JHU Physics Fair, Baltimore, MD 2018 – Present
Led public viewing of the Sun using the Morris W. Offit Telescope equipped with a neutral density filter as well as an H-alpha telescope
- Member**, JHU Physics and Astronomy Graduate Student Outreach, Baltimore, MD 2017 – Present
*Led physics demonstrations for K-12 students
Brought a portable planetarium to local schools and libraries*
- Member**, CUNY Hunter College Society of Physics Students, New York, NY 2015 – 2017
Helped organize and lead public stargazing events in New York City's Central Park
- Intern/Volunteer**, Cradle of Aviation Museum, Garden City, NY 2013 – 2014
Aided in the preparation of planetarium shows by performing research on topics in astronomy, writing storyboards and scripts, and using software to make animations

Publications

- Hamer, J. H.**, Schlaufman, K. C., 2022, "Kepler Multiple-planet Systems with Planets Near Mean Motion Resonance are Young", in preparation
- Hamer, J. H.**, Schlaufman, K. C., 2022, "Evidence for the Late Arrival of Hot Jupiters in Systems with High Host-star Obliquities", *The Astronomical Journal*, in press
- Hamer, J. H.** 2021, "Coadded Spectroscopic Stellar Parameters and Abundances from the LAMOST Low Resolution Survey", *Research Notes of the AAS*, 5, 24
- Hamer, J. H.**, Schlaufman, K. C., 2020, "Ultra-short-period Planets Are Stable against Tidal Inspiral", *The Astronomical Journal*, 160, 138
- Hwang, H., **Hamer, J. H.**, Zakamska, N. L., Schlaufman, K. C., 2020, "Very wide companion fraction from Gaia DR2: A weak or no enhancement for hot Jupiter hosts, and a strong enhancement for contact binaries", *Monthly Notices of the Royal Astronomical Society*, 497, 2
- Hamer, J. H.**, Schlaufman, K. C., 2019, "Hot Jupiters Are Destroyed by Tides While Their Host Stars Are on the Main Sequence", *The Astronomical Journal*, 158, 190

Honors and Awards

Maryland Space Grant Consortium Observatory Fellow	2019 - 2020
NSF Graduate Research Fellowship Honorable Mention	2019
Horace W. Goldsmith Scholar	2017
Lisa Goldberg/Revson Scholar	2017
Goldwater Scholarship Honorable Mention	2016
Hunter Undergraduate Research Fellowship	2015, 2016
Raab Presidential Fellowship	2014

Teaching Assistantships

Head Teaching Assistant, Teaching Assistant, AS 173.112 General Physics Lab II	Spring 2019
Head Teaching Assistant, Teaching Assistant, AS 173.111 General Physics Lab I	Fall 2018
Head Teaching Assistant, Teaching Assistant, AS.173.112 General Physics Lab II	Spring 2018
Teaching Assistant, AS.171.101 General Physics for Physical Science Majors I	Fall 2017
Teaching Assistant AS.173.111 General Physics Lab I	Fall 2017

Workshops & Conferences Attended

Exoplanets IV, Las Vegas, NV	2022
JHU Empower Your Pitch Research Communication Series, Virtual	2022
AAS Astronomy Ambassadors, Virtual	2022
Exoplanets III, Virtual	Summer 2020
MW-Gaia WG3 Workshop, Exoplanets in the Era of Gaia, Porto	Fall 2019
Extreme Solar Systems IV, Reykjavik	Summer 2019
Sagan Exoplanet Summer Workshop, NASA Exoplanet Science Institute, Caltech	Summer 2018
Emerging Researchers in Exoplanet Science IV, Penn State University	Summer 2018
Gaia Sprint, Center for Computational Astrophysics	Summer 2018
Chesapeake Bay Area Exoplanet Science Meeting	Fall '17, Spring '18, Fall '18, Spring '19, Fall '19, Winter 2020
American Astronomical Society's 227th Meeting	Winter 2016

Presentations

Exoplanets IV	Spring 2022
<i>Relative Stellar Ages Reveal the Origins of Hot Jupiters and Departures from Commensurability in Kepler Multiple-planet Systems</i>	
Piecing Together the Complete Puzzle of Planet Populations	Fall 2020
<i>The Unexpectedly Divergent Fates of Hot Jupiters and Ultra-short-period Planets</i>	
Exoplanets III	Summer 2020

<i>The Unexpectedly Divergent Fates of Hot Jupiters and Ultra-short-period Planets</i>	
MW-Gaia WG3 Workshop, Exoplanets in the Era of Gaia	Fall 2019
<i>Addressing Questions in Exoplanet Evolution with Gaia</i>	
Graduate Board Oral Examination	Fall 2019
<i>Addressing Questions in Exoplanet Evolution with Gaia</i>	
Chesapeake Bay Area Exoplanet Science Meeting	Fall 2019
<i>Hot Jupiters are Tidally Destroyed While Their Hosts are on the Main Sequence</i>	
Extreme Solar Systems IV	Summer 2019
<i>Hot Jupiters are Tidally Destroyed While Their Hosts are on the Main Sequence</i>	
First Year Research Exam	Fall 2018
<i>Tidal Dissipation in Hot Jupiter Systems</i>	
Society for Physics and Astronomy Research Conference	Fall 2016
<i>Using Dense Hydrogen Clouds to Improve Galaxy Formation Models</i>	
CUNY Hunter College Undergraduate Research Conference	Spring 2016
<i>Using Dense Hydrogen Clouds to Improve Galaxy Formation Models</i>	
American Astronomical Society's 227th Meeting	Winter 2016
<i>Matching High-z Observations of Damped Lyman-Alpha Absorption Systems</i>	
AMNH's Physical Science Undergraduate Research Symposium	Summer 2015
<i>Damped Lyman-Alpha Absorption Systems: Attempting to Match High-Redshift Observations with Semi-Analytic Models</i>	
CUNY Hunter College Undergraduate Research Conference	Spring 2015
<i>Galaxy Formation Modeling: Dense Hydrogen Clouds in the Early Universe</i>	
AMNH's Physical Science Undergraduate Research Symposium	Summer 2014
<i>Contrasting the Outputs of Two Cosmological Simulations</i>	

Service Activities

Diversity, Equity, and Inclusion Representative, JHU PAGS	2021 – Present
No-PhDs Journal Club Coordinator, JHU PAGS	2020 – Present
Liaison with JHU Chapter of SPS, JHU PAGS	2020 – 2021
Treasurer, JHU PAGS	2019 – Present
Contributor, JHU Physics and Astronomy Department Physics Fair	2018 – Present
Member, JHU PAGS Outreach	2017 – Present
Organizer, Tea and Cookies with the JHU/STScI Colloquium Speaker	Spring 2020
Organizer, Exoplanet Journal Club	2019 – 2020
Teaching Assistant Coordinator, JHU Physics and Astronomy Graduate Student (PAGS) Association	2019 – 2020
Member, Society of Physics Students (SPS)	2015 – 2017
Volunteer, Cradle of Aviation Museum	2015