

# Jiayin (DJ) Dong

PhD in Astronomy & Astrophysics

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## Current Position

### Flatiron Research Fellow

Center for Computational Astrophysics, Flatiron Institute – Simons Foundation

New York, NY

July 2022 – now

## Education

### Pennsylvania State University

Ph.D. in Astronomy & Astrophysics; Ph.D. minor in Computational Science

M.S. in Astronomy & Astrophysics

State College, PA

August 2022

April 2019

### University of Illinois at Urbana-Champaign

B.S. in Engineering Physics and Astronomy (dual degree) with honors

Champaign, IL

May 2017

## Fellowships & Awards

- 2022–25 **Flatiron Research Fellowship** Postdoctoral fellowship at CCA, Flatiron Institute
- 2022 **Alumni Association Dissertation Award** The most prestigious recognition to Penn State doctorate students
- 2021 **Raynor L. Duncombe Student Research Prize** Awarded by AAS Division on Dynamical Astronomy
- 2018–20 **Zaccheus Daniel Fellowship (x3)** Penn State travel grants for graduate student research
- 2020 **CCA Pre-Doctoral Fellowship** Selected as a predoc fellow at CCA, Flatiron Institute in Spring 2020
- 2019 **Student Poster Competition Winner** at New Horizons in Planetary Systems Conference
- 2018 **Sagan Workshop Travel Award** Travel support for 2018 Sagan Exoplanet Summer Workshop
- 2017 **Homer F. Braddock Fellowship** University scholarship awarded to selected 1st-year graduate students
- 2014–17 **Edmund J. James Scholar** Undergraduate honor program at the University of Illinois

## Refereed Publications

### First-authored publications

- [5] **Dong, J.**, Huang, C., Zhou, G., Dawson, R., et al. 2022, "NEID Rossiter-McLaughlin Measurement of TOI-1268b: A Young Warm Saturn Aligned with Its Cool Host Star", *ApJL*, **926**, L7 (12pp)
- [4] **Dong, J.**, Jiang, Y., & Armitage, P. 2021, "Boundary Layer Circumplanetary Accretion: How Fast Could an Unmagnetized Planet Spin Up Through Its Disk?", *ApJ*, **921**, 54 (15pp)
- [3] **Dong, J.**, Huang, C., Zhou, G., Dawson, R., et al. 2021, "TOI-3362b: A Proto-Hot Jupiter Undergoing High-Eccentricity Tidal Migration", *ApJL*, **920**, L16 (11pp)
- [2] **Dong, J.**, Huang, C., Dawson, R., Foreman-Mackey, D., et al. 2021, "Warm Jupiters in TESS Full-Frame Images: A Catalog and Observed Eccentricity Distribution for Year 1", *ApJS*, **255**, 6 (25pp)
- [1] **Dong, J.**, Dawson, R., Shannon, A., & Morrison, S. 2020, "Debris Disks in Multi-Planet Systems: Are Our Inferences Compromised by Unseen Planets?", *ApJ*, **889**, 47 (19pp)

### Co-authored publications

- [6] Kanodia et al. incl. **Dong, J.** 2022, "TOI-3757 b: A low density gas giant orbiting a solar-metallicity M dwarf", *AJ*, in press
- [5] Stefansson et al. incl. **Dong, J.** 2022, "The Warm Neptune GJ 3470b has a Polar Orbit", *ApJL*, **931**, L15

- [4] Foreman-Mackey et al. incl. **Dong, J.** 2021, "exoplanet: Gradient-based Probabilistic Inference for Exoplanet Data & Other Astronomical Time Series", JOSS, **6**, 3285
- [3] Dawson et al. incl. **Dong, J.** 2021, "Precise Transit and Radial-Velocity Characterization of a Resonant Pair: A Warm Jupiter TOI-216c and Eccentric Warm Neptune TOI-216b", AJ, **161**, 161
- [2] Kanodia et al. incl. **Dong, J.** 2020, "TOI-1728b: The Habitable-zone Planet Finder Confirms a Warm Super Neptune Orbiting an M Dwarf Host", ApJ, **899**, 1
- [1] McFarquhar et al. incl. **Dong, J.** 2017, "Processing of Cloud In-Situ Data Collected by Bulk Water, Scattering and Imaging Probes: Fundamentals, Uncertainties and Efforts towards Consistency", Meteorological Monographs, **11.1**

## Successful Observing Proposals

**PI** of PSU NEID (2020–now), **38.5** hours (including **16**-hour P0/1 time), Architecture of TESS Warm Jupiter Systems

**PI** of NOIRLab NEID (2021–now), **20** hours (including **3**-hour P0 time), Conquering Stellar Variability for Young Planet Mass

**PI** of NOIRLab CHIRON (2020–now), **130** hours, TESS Warm Jupiter Catalog: Validation and Follow-up

**PI** of NOIRLab LCOGT (2020–now), **80** hours, TESS Warm Jupiter Catalog: Validation and Follow-up

**PI** of NOIRLab MINERVA-Australias (2021–now), **60** hours, TESS Warm Jupiter Catalog: Validation and Follow-up

**CO-I** on 3 other proposals, total of 49.2 hours of NEID, and total of 3 hours of NESSI

## Invited Talks/Seminars

- Feb. 2022 **Tsinghua Planet Group Meeting** "Origins of Warm Jupiters" Beijing, China
- Oct. 2021 **Princeton Exoplanet Seminar** "Tracing Dynamical Evolution of Planetary Systems" Princeton, NJ
- Oct. 2021 **Caltech Planetary Science Seminar** "Tracing Dynamical Evolution of Planetary Systems" Pasadena, CA
- Oct. 2021 **Berkeley Center for Integrative Planetary Science Seminar** "Tracing Dynamical Evolution of Planetary Systems" Berkeley, CA (Virtual)
- Oct. 2021 **Carnegie EPL Astronomy Seminar** "Tracing Dynamical Evolution of Planetary Systems" Washington, D.C. (Virtual)
- Sep. 2021 **CfA Seminar** "Tracing Dynamical History of TESS Warm Jupiters" Boston, MA (Virtual)
- Jan. 2020 **Tsinghua Planet Group Meeting** "Debris Disks in Multi-Planet Systems+TESS Warm Jupiters" Beijing, China

## Contributed Conference Talks

- June 2022 **The 240th AAS Meeting** "Tracing Dynamical Evolution of Planetary Systems" Pasadena, CA (**Dissertation talk**)
- April 2022 **The 53rd DDA Meeting** "Two Case Studies of Warm Jupiters Suggesting Different Origins" New York, NY
- May 2021 **The 52nd DDA Meeting** "Boundary Layer Circumplanetary Accretion: How Fast Could an Unmagnetized Planet Spin Up Through Its Disk?" (Virtual, **Duncombe Prize Winner**)
- Jan. 2021 **TESS Science Meeting 24** "Warm Jupiters in Year 1 TESS Full-Frame Images: A Catalog and Observed Eccentricity Distribution" Boston, MA (Virtual)
- Nov. 2020 **Exoplanet Demographics I** "The Eccentricity Distribution and Occurrence Rates of Warm, Large Exoplanets" Pasadena, CA (Virtual)
- Aug. 2020 **The 51st DDA Meeting** "Unraveling Warm, Large Exoplanet (WaLE) Origins From TESS Observations" Ithaca, NY (Virtual)
- July 2020 **Exoplanets III** "A Catalog of Warm, Large Exoplanet (WaLE) candidates discovered in TESS Full Frame Images" Heidelberg, Germany (Virtual)
- June 2019 **Emerging Researchers in Exoplanet Science V** "Probing Young Planetary Systems from Their Debris Disks: Are Our Inferences Compromised by Unseen Planets?" Ithaca, NY

June 2018 **Emerging Researchers in Exoplanet Science IV** "Investigating Young Planetary Systems Through Their Debris Disks" State College, PA

## Seminars

June 2020 **CCA Pre-Doctoral Symposium** "Angular Momentum Transport in Circumplanetary Disks: How Much Could an Unmagnetized Planet Spin up Through Its Disk?" New York, NY (Virtual)

Nov. 2019 **Penn State Astronomy Lunch Talk** "Detection and Characterization of Warm Jupiters in TESS Full-Frame Images" State College, PA

Jan. 2019 **Penn State Astronomy Lunch Talk** "Probing Young Planetary Systems from Their Debris Disks: Are We Messed up by Unseen Planets?" State College, PA

Sep. 2017 **Penn State Astronomy Lunch Talk** "An ALMA Continuum Survey of the Protoplanetary Disks in the  $\rho$ -Ophiuchus Molecular Cloud" State College, PA

## Conference Posters

May 2022 **Exoplanets IV** "Two Case Studies of Warm Jupiters Suggesting Different Origins" Las Vegas, NV

Aug. 2021 **TESS Science Conference II** "The Eccentricity Distribution, Occurrence Rates, and Companions of TESS Warm Jupiters" Cambridge, MA (Virtual)

May 2021 **Emerging Researchers in Exoplanet Science VI** "In Situ versus Disk Migration Origins of Warm Jupiters: Prediction on Nearby Companions" (Virtual)

May 2021 **The 52nd DDA Meeting** "In Situ versus Disk Migration Origins of Warm Jupiters: Prediction on Nearby Companions" (Virtual)

Aug. 2019 **Extreme Solar Systems IV** "Probing Young Planetary Systems from Their Debris Disks: Are Our Inferences Compromised by Unseen Planets?" Reykjavik, Iceland

July 2019 **TESS Science Conference I** "Detection and Characterization of TESS Warm Jupiters" Cambridge, MA

May 2019 **New Horizons in Planetary Systems** "Probing Young Planetary Systems from Their Debris Disks: Are Our Inferences Compromised by Unseen Planets?" Victoria, BC (**Poster Prize Winner**)

July 2018 **Sagan Exoplanet Summer Workshop** "Investigating Young Planetary Systems Through Their Debris Disks" Pasadena, CA

## Mentoring Experience

2021–2022 **Claire DiPerna**, Penn State UG, Class of 2024, co-supervised with Bekki Dawson

2021–2022 **Jonathon Hope**, Penn State UG, Class of 2024, co-supervised with Bekki Dawson

## Teaching Experience

### Graduate Teaching Assistant

Elementary Astronomy; Fundamental of Planetary Science and Astronomy

State College, PA  
2017, 18

- TA responsibilities including grading assignments, offering office hours, and proctoring exams
- Two guest lectures to roughly 150 students on "**The Solar System Formation**"
- One guest lecture to 5 students on "**Elementary Astronomy Lab**"

### Grader and Observation Assistant

Introduction to Astrophysics

Champaign, IL  
2016, 17

- Graded homework and exams for sophomore undergraduate students in Astronomy major
- Set up telescopes, monitored telescopes for safe use by students, and discussed celestial objects being observed during the evening and solar observing sessions

## Outreach & Professional Activity

- 2022 **Chair** of the Organizing Committee for the 7th Emerging Researchers in Exoplanet Science symposium; 90 participants; Proposed and awarded \$100k meeting funds from the Heising-Simons Foundation
- 2022, 17–19 **Exploring Exoplanets Demonstrator; The Guardian of Kid Prizes; Featured Talks** at AstroFest (4-night outreach, 2500+ public visitors) & Astronight (1-night outreach, 500+ students)
- 2022 **Astronomy on Tap Speaker** Live coding Solar System dynamics using N-body integrators
- 2021 **Sagan Workshop Hands-on Session Helper** Facilitated hands-on session at Sagan workshop 2021
- 2021 **Organizing Committee** for the 6th Emerging Researchers in Exoplanet Science symposium; Organized discussion panels for career development and public engagement in astronomy
- 2020 **Panelist** on the Graduate School Information Session for Penn State undergraduate students
- 2020 **Moderator** for Exoplanets III; 950+ online participants; Coordinated with Transits 1 & 2 sessions
- Fall 2019 **CEHW Journal Club Organizer** Organized weekly Astro-ph.EP group discussion for the Center for Exoplanets and Habitable Worlds (CEHW)
- 2019 **Executive Secretary** of NASA XRP Review Panel
- 2018 **Organizing Committee** for the 4th Emerging Researchers in Exoplanet Science symposium; Involved in abstract selection and conference scheduling; Chaired the **Planet Formation & Evolution** session; Organized excursions.

## Press Release

- 2021 **"Worlds Away" (Dong+21c)** Featured by the Simons Foundation 2021 Annual Report (Dong+21c)
- 2021 **"Newly discovered gas giant moving closer to its star" (Dong+21b)** Press release of TOI-3362b by the Eberly College Science News, MINERVA-Australis Press, & ABC Southern Queensland
- 2021 **AAS Journal Author Series (Dong+21a)** Interviewed with AAS Editor Frank Timmes about the TESS Warm Jupiter catalog and statistics
- 2020 **"Detail in the Debris" (Dong+20)** Featured by the Eberly College Science Journal Winter Edition