# Songhu Wang, Ph.D.

Department of Astronomy
Indiana University
Bloomington, IN 47405

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### EDUCATION

NANJING UNIVERSITY, China Ph.D. in Astronomy, 2010 – 2016 Thesis: CSTAR Exoplanet Detection and Transiting Exoplanet Follow-Up Research Advisor: Ji-Lin Zhou	
APPOINTMENTS INDIANA UNIVERSITY, Bloomington, IN Assistant Professor	2020 – Present
YALE UNIVERSITY, New Haven, CT Inaugural 51 Pegasi b Postdoctoral Fellow	2017 - 2020
YALE UNIVERSITY, New Haven, CT Postdoctoral Research Associate Advisor: Gregory Laughlin	2016 - 2017
UNIVERSITY OF CALIFORNIA, Santa Cruz, CA China Scholarship Council Graduate Research Fellow Advisor: Steven Vogt, Gregory Laughlin	2014 - 2016
AWARDS & PUBLICITY	
<ul> <li>Scialog Fellow</li> <li>Heising-Simons Foundation Research Grant (PI, \$124,518)</li> <li>"Place the Solar System into the Cosmic Context"</li> </ul>	2023 – Present 2023-2026
<ul> <li>51 Pegasi b Fellowship (PI, \$375,000)</li> <li><i>"Characterizing the Galactic Planetary Census"</i></li> </ul>	2017 - 2020
<ul> <li>Nanjing University Outstanding Ph.D. Graduate Award</li> </ul>	2016
China Scholarship Council Fellowship	2014 - 2016
<ul> <li>Nanjing University Communications Holding Award (Outstanding Award)</li> <li>Naniing University Presidential Award</li> </ul>	2015 2014
STUDENT AWARDS	
<ul> <li>Keduse Worku, Best Poster Award, National Mentoring Community Conference, APS</li> <li>Greg Lukens, Advanced Summer Research Scholarship (\$2,500), IU Undergraduate Research</li> <li>Jackson Taylor, Fleischer Research Grant (\$6,000) and Hutton Honors College Grant (\$3,000)</li> </ul>	2020 2021 2021
STUDENTS MENTORING	
Undergraduate:	
<ul> <li>Josette Wright, Indiana University</li> </ul>	2021 – Present
<ul> <li>Jackson Taylor, Indiana University</li> <li>Construction Indiana University (norm Construction for the form State University)</li> </ul>	2021 - 2022
• Greg Lukens, Indiana University (now Graduate student at Penn State University)	2020 - 2022
• Trustin Henderson Vale	2018 - 2021 2017 - 2020
<ul> <li>Rebekah and Jennifer Kahn, Smith Collage</li> </ul>	2017 2020
Graduate:	
<ul> <li>Jessica Ranshaw, Indiana University</li> </ul>	2022 - Present
<ul> <li>Kyle Hixenbaugh, Indiana University</li> </ul>	2021 – Present
<ul> <li>Brandon Radzom, Indiana University</li> </ul>	2021 – Present
<ul> <li>Armaan Goyal, Indiana University</li> <li>Allen Devia, Vala (new Divisor Teacher et letternetional School of Device)</li> </ul>	2020 - Present
<ul> <li>Alten Davis, Tate (now Phyles Teacher at International School of Boston)</li> <li>Vong-Hao Wang, NAOC, China (now Faculty at Hainan University)</li> </ul>	2010 - 2021 2014 - 2010
<ul> <li>Pia Cortes-Zuleta, University of Chile (now Phd Candidate at Aix-Marseille University)</li> </ul>	2014 2017

<ul> <li>Dong-Hong Wu, Nanjing University (now Faculty at Anhui Normal University)</li> </ul>	2016 - 2018
• En-Si Liang, Nanjing University, China (now staff at Teledyne Princeton Instruments)	2014-2016
Postdoc:	
Nian-Yu Wang, Indiana University	2022 – Present
<ul> <li>Ilaria Carleo, Indiana University (now Juan De La Cierva Fellow at IAC, Spain)</li> </ul>	2021 - 2022

#### **OBSERVING PROGRAMS**

#### Keck I (PI: 12 nights, Co-I: 10 nights)

- Keck I, HIRESr, 2020A, 2 nights, PI: Are Hot Jupiters Dynamically Hot?
- Keck I, HIRESr, 2020A, 2 nights, PI: Non-transiting Hot Jupiters, Hidden Companions to Known Exoplanets
- <sup>o</sup> Keck I, HIRESr, 2019B, 4 nights, PI: Non-transiting Hot Jupiters, Hidden Companions to Known Exoplanets
- Keck I, HIRESr, 2019A, 1 night, PI: Are Hot Jupiters Dynamically Hot?
- Keck I, HIRESr, 2018B, 1 night, PI: Are Multiple-Planet System Generally Co-Planar?
- Keck I, HIRESr, 2018A, 1 night, PI: Do Multi-planet Systems Share Alignment with Their Parent Stars?
- Keck I, HIRESr, 2017A, 1 night, PI: Measuring the Spin-Orbit Alignment of a Multi-Planetary System
- Keck I, HIRESr, 2022A, 1 night, Co-I: An Investigation of the Obliquities of TESS Planet Hosts
- Keck I, HIRESr, 2022A, 2 night, Co-I: On the Origins of Exoplanet Spin-Orbit Misalignments
- Keck I, HIRESr, 2021B, 2 night, Co-I: On the Origins of Exoplanet Spin-Orbit Misalignments
- Keck I, HIRESr, 2021A, 3 night, Co-I: On the Origins of Exoplanet Spin-Orbit Misalignments
- Keck I, HIRESr, 2020B, 2 nights, Co-I: Non-transiting Hot Jupiters Hidden Companions to Known Exoplanets

### WIYN NEID (PI: 46 nights, Co-I: 2 nights)

- WIYN, NEID, 2023A, 12.7 nights, PI: Probing Stellar Obliquities for Non-Hot-Jupiter Systems
- WIYN, NEID, 2022B, 5 nights, PI: Probing Stellar Obliquities with NEID
- WIYN, NEID, 2022A, 12 nights, PI: Probing Stellar Obliquities with NEID
- WIYN, NEID, 2021B, 8 nights, PI: Are Multi-Planetary Systems Spin-Orbit Aligned?
- " WIYN, NEID, 2021A, 8.3 nights, PI: Are Multi-Planetary Systems Spin-Orbit Aligned?
- WIYN, NEID, 2023A, 2 nights, Co-I, The Orbital Architectures of Warm Jupiters Systems around Hot Stars

### SMARTS CHIRON (PI: 19 nights, Co-I: 18.5 nights)

- SMARTS, CHIRON, 2019A, 100 hours, PI: Completing the Brightest-Ever Sample of Hot Jupiter
- SMARTS, CHIRON, 2018A, 60 hours, PI: Characterizing Hot Jupiters of the Southern Hemisphere
- SMARTS, CHIRON, 2017B, 30 hours, PI: Characterizing Hot Jupiters of the Southern Hemisphere
- SMARTS, CHIRON, 2021A, 60 hours, Co-I: Validation and Radial Velocity Follow-up of TESS Warm Jupiters
- SMARTS, CHIRON, 2020A, 30 hours, Co-I: Precise Radial Velocity Confirmation of TESS Sub-Saturns
- SMARTS, CHIRON, 2019B, 30 hours, Co-I: Precise Radial Velocity Confirmation of TESS Sub-Saturns
- SMARTS, CHIRON, 2019A, 20 hours, Co-I: Precise Radial Velocity Confirmation of TESS Sub-Saturns
- SMARTS, CHIRON, 2019A, 30 hours, Co-I: Radial Velocity Confirmation of Bright TESS Warm Jupiters
- SMARTS, CHIRON, 2018B, 15 hours, Co-I: Radial Velocity Confirmation of Bright TESS Warm Jupiters

### Palomar 200-Inch (PI: 11 nights)

• Palomar 200-inch, WIRC, 2017B, 11 nights, PI: Assessing the Habitability of Trappist-1 Multi-planet System Automatic Planet Finder (Core-Member: 140 nights/year)

• APF, Levy, 2014-2018, 140 nights/year, Core Member: *The Lick-Carnegie Exoplanet Survey* 

# Transiting Exoplanet Monitoring Project (PI: 200 nights/year)

• 4×1m telescopes, 2014-2018, 200 nights/year, PI: Transiting Exoplanet Monitoring Project

# Magellan (Co-I: 3.5 nights)

- Magellan, PFS, 2023A, 2.5 night, Co-I: An Extended Sample of Orbital Geometries for Tidally Deteached Substellar Companions
- Magellan, PFS, 2022B, 1 night, Co-I: Stellar Obliquities in Multiplanet Systems

# Anglo-Australian Telescope (Co-I: 80 nights)

- AAT, Veloce, 2020B, 2 nights, Co-I: Probing the Origins of Warm and Tropical Jovian and Sub-Jovian Planets by Measuring Their Orbital Obliquities
- AAT, Veloce, 2019A, 42 nights, Co-I: Transiting Exoplanet Science with Veloce
- AAT, Veloce, 2018B, 27 nights, Co-I: Transiting Exoplanet Science with Veloce
- AAT, CYCLOPS2, 2016B, 9 nights, Co-I: Exploitation of Southern Transiting Planets

# Spitzer (Co-I: 18.6 hours)

<sup>o</sup> Spitzer, Cycle-14, 18.6 hours, Co-I: Super-Earth Transits of the Nearest Planetary System Discovered By K2

### LCOGT (Co-I: 182 hours)

- <sup>o</sup> LCOGT, 2021A, 50 hours, Co-I: Validation and Radial Velocity Follow-up of TESS Warm Jupiters
- <sup>•</sup> LCOGT, 2021A, 30 hours, Co-I: Understanding the Shortening Period of WASP-12 b
- LCOGT, 2020A, 30 hours, Co-I: Photometric Follow-Up of Apparent Decaying Orbital WASP-12 b
- LCOGT, 2019A, 72 hours, Co-I: *Photometry and Radial Velocity Follow-up of Bright Transiting Exoplanets* **SONG (Co-I: 98 hours)**
- SONG, 2020A, 98 hours, Co-I: Detecting and Characterizing Newly Found Warm and Tropical Jovians CFHT (Co-I: 9.1 hours)
- CFHT, SPIRou, 2020A, 9.1 hours, Co-I: On the origin of ultra-short period planets

### Minerva-Australis (Co-I: 40 hours)

• Minerva-Australis, 2021A, 40 hours, Co-I: Validation and Radial Velocity Follow-up of TESS Warm Jupiters

# PUBLICATION (11 1<sup>st</sup>-Author, 24 2<sup>nd</sup>-Author/Advisee-led Publications, 65 Total; H index=19, Citations=1273) First Author:

- 1. The Aligned Orbit of the Warm Jupiter K2-232b Songhu Wang, Josh Winn, Brett Addison et al. 2021, The Astronomical Journal, 162, 50
- 2. HD 202772Ab: A Transiting Hot Jupiter Around a Bright, Mildly Evolved Star Discovered by TESS Songhu Wang, Matias Jones, Avi Shporer et al. 2019, The Astronomical Journal, 157, 51
- 3. Transiting Exoplanet Monitoring Project (TEMP). I. Refined System Parameters and Transit Timing Variations of HAT-P-29b
- **Songhu Wang**, Xian-Yu Wang, Yong-Hao Wang et al. 2018, **The Astronomical Journal**, 156, 181 4. Updated Masses for the TRAPPIST-1 Planet
- Songhu Wang, Dong-Hong Wu, Thomas Barclay, and Gregory Laughlin 2017, arXiv:1704.04290
- *5. Transiting Exoplanet Monitoring Project (TEMP). III. On the Relocation of the Kepler-9 b Transit* **Songhu Wang**, Dong-Hong Wu, Brett Addison et al. 2018, **The Astronomical Journal**, 155, 73
- 6. RV-Detected Kepler-Multi Analogs Exhibit Intra-System Mass Uniformity Songhu Wang 2017, The Research Note of the American Astronomical Society, 1, 26
- 7. Stellar Spin-Orbit Alignment for Kepler-9, a Multi-Transiting Planetary System with Two Outer Planets Near 2:1 Resonance
- **Songhu Wang**, Brett Addison, Debra Fischer et al. 2018, **The Astronomical Journal**, 155, 70 8. Photometric Variability in the CSTAR Field: Results from the 2008 Data Set
- **Songhu Wang**, Hui Zhang, Xu Zhou et al. 2015, **The Astrophysical Journal Supplement**, 218, 20 9. Planetary Transit Candidates in the CSTAR Field: Analysis of the 2008 Data Set
- **Songhu Wang**, Hui Zhang, Ji-Lin Zhou et al. 2014, **The Astrophysical Journal Supplement**, 211, 26 *10. The Correction of Diurnal Effects on the CSTAR Photometry*
- **Songhu Wang**, Xu Zhou, Hui Zhang et al. 2014, **Research in Astronomy and Astrophysics**, 14, 345 11. The Inhomogeneous Effect of Clouds on the CSTAR Photometry and Its Correction
- Songhu Wang, Xu Zhou, Hui Zhang et al. 2012, The Publications of the Astronomical Society of the Pacific, 124, 1167

### Second-Author, Corresponding Author(^), or Advisee Led(\*)

- 1. \*The First Measurement of the Rossiter-Mclaughlin Effect for a Warm Sub-Saturn around a Massive Star Kyle Hixenbaugh, Xian-Yu Wang, Malena Rice, **Songhu Wang** 2023, **The Astrophysical Journal Letters**, Submitted
- <sup>2</sup>. <sup>A</sup>Evidence for Hidden Nearby Companions to Hot Jupiters Dong-Hong Wu, Malena Rice, Songhu Wang et al. 2023, Astronomical Journal, Accepted. Arxiv: 2302.12778
- 3. The Orbital Architecture of Qatar-6, A Fully Aligned 3-Body System? Malena Rice, Songhu Wang et al. 2023, 165, 65
- 4. A Tendency Toward Alignment in Single-Star Warm Jupiter Systems Malena Rice, Songhu Wang et al. 2022, The Astronomical Journal, 164, 104
- 5. \*Generalized Peas-in-a-Pod: Etending Intra-System Mass Uniformity to Non-TTV Systems via the Gini Index Armaan Goyal & Songhu Wang et al. 2022, 933, 162
- 6. ^\*The Aligned Orbit of WASP-148b, the Only Known Hot Jupiter with a Nearby Warm Jupiter Companion, from NEID and HIRES
  - Xian-Yu Wang, Malena Rice, Songhu Wang et al. 2021, The Astrophysical Journal Letters, 926, L8

- 7. Origins of Hot Jupiters from the Stellar Obliquity Distribution
- Malena Rice, Songhu Wang, Greg Laughlin 2021, The Astrophysical Journal Letters, 926, L17
- 8. \*Revisiting the Full Sets of Orbital Parameters for the XO-3 System: No Evidence for Temporal Variation of the Spin-Orbit Angle
- Keduse Worku, Songhu Wang et al. 2021, The Astronomical Journal, 163, 158
- 9. Stellar Obliquities in Long-Period Exoplanet Systems (SOLES) I: The Spin-Orbit Alignment of K2-140b Malena Rice, Songhu Wang, Andrew Howard et al. 2021, Astronomical Journal, 162, 182
- 10. *^\*Transiting Exoplanet Monitoring Project (TEMP). VI. The Homogeneous Refinement of System Parameters for 39 Transiting Hot Jupiters with 127 New Light Curves*
- Xian-Yu Wang, Yong-Hao Wang, Songhu Wang, et al. 2021, The Astrophysical Journal Supplement, 255, 15 11. \*TOI 564 b and TOI 905b: Grazing and Fully Transiting Hot Jupiters Discovered by TESS
- Allen Davis, Songhu Wang, Matias Jones et al. 2019, The Astronomical Journal, 160, 229
- 12. \*TraMos V. Updated Ephemeris and Multi-epoch Monitoring of the hot Jupiters WASP-18A b, WASP-19b, and WASP-77Ab
  - Cortes-Zuleta Pia, Rojo Patricio, Songhu Wang et al. 2019, Astronomy & Astrophysics, 636, 98
- 13. Cool Jupiters Greatly Outnumber their toasty siblings: Occurrence rates from the Anglo-Australian Planet Search

Robert Wittenmyer, **Songhu Wang**, Jonathan Horner et al. 2019, **The Monthly Notices of the Royal Astronomical Society**, 492, 377

- 14. *\*\*Transiting Exoplanet Monitoring Project (TEMP). V. Transit Follow-Up for the HAT-P-9b, HAT-P-32b, and HAT-P-36b* 
  - Yong-Hao Wang, Songhu Wang, Tobias Hinse et al. 2018, The Astronomical Journal, 157, 82
- 15. Kepler-730: A Hot Jupiter with an Additional, Close-In Transiting Earth-Sized Planet Caleb I. Canas, **Songhu Wang**, Suvrath Mahadevan et al. 2018, **The Astrophysical Journal Letters**, 870, 17
- Compact Multi-Planet Systems More Common around Metal Poor Hosts
   John M. Brewer, Songhu Wang, Debra A. Fischer et al. 2018, The Astrophysical Journal Letters, 867, 3
- 17. Stellar Obliquities & Planetary Alignments (SOPA) I. The Nearly Polar Orbits of Two Transiting Hot Jupiters: WASP-100b and WASP-109b & Spin-Orbit Alignment of the Hot Jupiter WASP-72b Brett Addison, Songhu Wang, Marshall Johnson et al. 2018, The Astronomical Journal, 156, 197
- 18. \*TTV-determined Masses for Warm Jupiters and Their Close Companions
- Dong-Hong Wu, Songhu Wang, Ji-Lin Zhou et al. 2018, The Astronomical Journal, 156, 96
- 19. *\*\*Transiting Exoplanet Monitoring Project (TEMP). IV. Refined System Parameters, Transit Timing Variations, and Orbital Stability of the Transiting Planetary System HAT-P-25*

# Xian-Yu Wang, Songhu Wang, Tobias Hinse et al. 2018, The Publications of the Astronomical Society of the Pacific, 130, 064401

- 20. Kepler Multi-Planet Systems Exhibit Unexpected Intra-System Uniformity in Mass and Radius Sarah Millholland, Songhu Wang, Gregory Laughlin, 2017, The Astrophysical Journal Letters, 849, 33
- 21. *\*\*Transiting Exoplanet Monitoring Project (TEMP). II. Refined System Parameters and Transit Timing Variations of HAT-P-33b*
- Yong-Hao Wang, **Songhu Wang**, Hui-Gen Liu et al. 2017, **The Astronomical Journal**, 154, 49 22. \*Stellar Flares in the CSTAR Field. Results from the 2008 Data Set
- En-Si Liang, **Songhu Wang**, Ji-Lin Zhou et al. 2016, **The Astronomical Journal**, 152, 168 23. On the Detection of Non-Transiting Hot Jupiters in Multiple-Planet System
- Sarah Millholland, Songhu Wang, Gregory Laughlin 2016, The Astrophysical Journal Letters, 823, 7
- 24. Forever Alone? Testing Single Eccentric Planetary Systems for Multiple Companions Robert Wittenmyer, Songhu Wang, Jonathan Horner et al. 2013, The Astrophysical Journal Supplement, 208, 2

### **Contributing Author:**

- 1. TOI-3984Ab and TOI-5293Ab: Two Temperate Gas Giants Transiting Mid-M Dwarfs in Wide Binary Systems Caleb Canas, Shubham Kanodia, Jessica Libby-Roberts and 30 co-authors including Songhu Wang, 2023, , The Astronomical Journal, Submitted
- Spinning up a Daze: TESS Uncovers a Hot Jupiter Orbiting the Rapid-Rotator TOI-778 Jake Clark, Brett Addison, Jack Okumura, and 68 co-authors including Songhu Wang, 2023, The Astronomical Journal, Submitted

- 3. TOI-1136 is a Young, Coplanar, Aligned Planetary System in a Pristine Resonant Chain Fei Dai, Kento Masuda, Corey Beard, and 60 co-authors including **Songhu Wang**, 2023, **The Astronomical Journal**, 165, 33
- 4. Occurrence Rate of Hot Jupiters around Early-type M Dwarfs Based on TESS Data Tianjun Gan, Sharon Wang, and **Songhu Wang** et al. 2023, **The Astronomical Journal**, 165, 17
- 5. Transit Timing Variations for AU Microscopii b & c Justin Wittrock, Stefan Dreizler, Michael Reefe, and 42 co-authors including Songhu Wang, 2022, The Astronomical Journal, 164, 27
- 6. TOI-3362b: A Proto-Hot Jupiter Undergoing High-Eccentricity Tidal Migration Jiayin Dong, Chelsea X. Huang, George Zhou, and 42 co-authors including **Songhu Wang**, 2021, **The Astrophysical Journal Letters**, 920, L16
- 7. The Youngest Planet to Have a Spin-Orbit Alignment Measurement AU Mic b Brett Addison, Jonathan Horner, Robert A. Wittenmyer, and 19 co-authors including **Songhu Wang**, 2021, **The Astronomical Journal**, 162, 137
- 8. TOI-1431b/MASCARA-5: A Highly Irradiated Ultra-Hot Jupiter Orbiting One of the Hottest & Brightest Known Exoplanet Host Stars

Brett Addison, Emily Knudstrup, Ian Wong, and 70 co-authors including **Songhu Wang**, 2021, **The Astronomical Journal**, 169, 292

- 9. HD 76920b Pinned Down: A Detailed Analysis of the Most Eccentric Planetary System Around an Evolved Star C. Bergmaan, M. I. Jones, J. Zhao, and 9 co-authors including Songhu Wang, 2021, Publication of the Astronomical Society of Australia, 38, 19
- 10. A Collage of Small Planets from the Lick Carnegie Exoplanet Survey: Exploring the Super-Earth and Sub-Neptune Mass Regime

Jennifer Burt, Fabo Feng, Bradford Holden, and 15 co-authors including **Songhu Wang**, 2020, **The Astronomical Journal**, 160, 10

- 11. TOI-481b & TOI-892b: Two Long Period Hot Jupiters from the Transiting Exoplanet Survey Satellite Rafael Brahm, L. Nielsen, R. Wittenmyer, Songhu Wang et al. 2020, The Astronomical Journal, 160, 235
- 12. TOI-257b (HD 19916b): A Warm Sub-Saturn on a Moderately Eccentric Orbit Around an Evolved F-type Star Brett Addison, Duncan Wright, Belinda Nicholson, and 84 co-authors including Songhu Wang, 2019, The Monthly Notices of the Royal Astronomical Society, 502, 3704
- 13. California-Kepler Survey IX: Revisiting the Minimum-Mass Extrasolar Nebula with Precise Stellar Parameters Fei Dai, Joshua Winn, Kevin Schlaufman, Songhu Wang et al. 2020, The Astronomical Journal, 159, 247
- 14. Exoplanets in the Antarctic Sky. III. Stellar Flares Found by AST3-II (CHESPA) within the Southern CVZ of TESS

En-Si Liang, Hui Zhang, Zhou-Yi Yu, and 37 co-authors including **Songhu Wang**, 2020, **The Astronomical Journal**, 159, 201

15. Exoplanets in the Antarctic Sky. IV. Dual-band Photometry of Variables Found by the CSTAR-II Commissioning Survey at the North Sky

Jiapeng Zhu, Hui Zhang, En-Si Liang, and 30 co-authors including **Songhu Wang** et al. 2020, **Astronomy & Astrophysics**, 159, 172

- 16. TOI-677b: A Warm Jupiter (P=11.2days) on an Eccentric Orbit Transiting a Late F-type Star Andres Jordan, Rafael Brahm, Nestor Espinoza, and 50 co-authors including Songhu Wang, 2019, The Astronomical Journal, 159, 145
- A Super-Earth and Two Sub-Neptunes Transiting the Nearby and Quiet M-Dwarf TOI-270 Maximilian N. Gunther, Francisco J. Pozuelos, Jason A. Dittmann, and 57 co-authors including Songhu Wang, 2019, Nature Astronomy, 409
- 18. TOI-150: A Transiting Hot Jupiter in the TESS Southern CVZ Caleb I. Canas, Stefansson Gudmundur, Andrew J. Monson, and 24 co-authors including Songhu Wang, 2019, The Astrophysical Journal Letters, 877, 29
- 19. HD 2685 b: A Hot Jupiter orbiting an Early F-type Star Detected by TESS
   M. I. Jones, R. Brahm, N. Espinon, Songhu Wang, et al. 2018, Astronomy & Astrophysics, 625, 16

20. Truly Eccentric. I. Revisiting Eight Single-Eccentric Planetary Systems
 R. A. Wittenmyer, Jake Clark, Jinglin Zhao, and 3 co-authors including Songhu Wang, 2019, The Monthly Notices of the Royal Astronomical Society, 484, 5859

21. Exoplanets in the Antarctic sky. II. 116 Transiting Exoplanet Candidates Found by AST3-II (CHESPA) within

the Southern CVZ of TESS

Hui Zhang, Zhou-Yi Yu, En-Si Liang, and 37 co-authors including **Songhu Wang**, 2019, **The Astrophysical Journal Supplement**, 240, 17

22. Exoplanets in the Antarctic sky. I. The First Data Release of AST3-II (CHESPA) and New Found Variables within the Southern CVZ of TESS

Hui Zhang, Zhou-Yi Yu, En-Si Liang, and 37 co-authors including **Songhu Wang**, 2019, **The Astrophysical Journal Supplement**, 240, 16

- 23. Searching for Exoplanets with HEPS: I. Detection Probability of Earth-like Planets in Multiple Systems Zhou-Yi Yu, Hui-Gen Liu, Dong-Hong Wu, Songhu Wang, et al. 2017, Research in Astronomy and Astrophysics, 19, 4
- 24. The First Release of the AST3-1 Point Source Catalogue from Dome A, Antarctica Bin Ma, Zhaohui Shang, Yi Hu, and 35 co-authors including Songhu Wang, 2018, The Monthly Notices of the Royal Astronomical Society, 479, 111
- 25. The Study of Galactic Disk Kinematics with SCUSS and SDSS Data Xiyan Peng, Zhenyu Wu, Zhaoxiang Qi, and 5 co-authors including Songhu Wang, 2018, The Publications of the Astronomical Society of the Pacific, 130, 4102
- 26. The Lick-Carnegie Exoplanet Survey: HD32963 A New Jupiter Analog Orbiting A Sun-Like Star Dominick Rowan, Stefano Meschiari, Gregory Laughlin, and 9 co-authors including Songhu Wang, 2016, The Astrophysical Journal, 817, 104
- 27. Six Planets Orbiting HD 219134
   Steven S. Vogt, Jennifer Burt, Stefano Meschiari, and 10 co-authors including Songhu Wang, 2015, The Astrophysical Journal, 814, 12
- 28. Eclipsing Binaries From the CSTAR Project at Dome A, Antarctica Ming Yang, Hui Zhang, Songhu Wang et al. 2015, The Astrophysical Journal Supplement, 217, 28
- 29. An Investigation of the Absolute Proper Motions of the SCUSS Catalog Xiyan Peng, Zhaoxiang Qi, Zhenyu Wu, and 21 co-authors including Songhu Wang, 2015, The Publications of the Astronomical Society of the Pacific, 127, 250
- 30. Ghost Image Correction in the CSTAR Photometry Zeyang Meng, Xu Zhou, Hui Zhang, and 6 co-authors including Songhu Wang, 2013, The Publications of the Astronomical Society of the Pacific, 125, 1105

### **PROFESSIONAL SERVICE**

Referees for: the AAS Journals, PNAS	2016-Present
Panelist for NASA XRP	Twice
Panelist for NSF Career Award	
Panelist for Heising-Simons Foundation 51 Pegasi b Fellowship Program	Twice
Panelist for NASA Hubble Fellowship Program Panel Review	
Panelist for NOIRLab TAC	
Co-Chair a Special Session at 54 <sup>th</sup> DDA with Prof. Lauren Weiss	
External Reviwer for NSF Astronomy and Astrophysics Postdoctoral Fellowship Program	n
<ul> <li>Editorial Board Member for Scientific Reports</li> </ul>	2022-Present
Indiana University Astronomy Colloquium Organizer	2021-Present
Indiana University TAC	2020-Present
<ul> <li>External Reviewer for CFHT Proposal (Telescope Access Program)</li> </ul>	2019
<ul> <li>External Reviewer for LCOGT Proposal (Telescope Access Program)</li> </ul>	2020
Panelist for OSU Research Statement workshop	2020
Co-organizer of Yale Astronomy Colloquium	2016-2017
SOC and LOC member, ERES III Conference, Yale	2017
<ul> <li>ERES III Conference Peer Review Discussion Panel</li> </ul>	2017

### SELECTED PUBLICITY

- IU News Net Interview on Mars Rover Landing <u>https://sites.mediaschool.indiana.edu/newscasts/work/perseverance-what-it-is-and-how-it-helps/</u>
- IU Science Interview on Exoplanet Research https://blogs.iu.edu/sciu/2021/04/03/exoplanets-finding-the-right-question

- NOAO Currents, *the First TESS Hot Jupiter* https://www.noao.edu/currents/201902.html
   AAS NOVA, *the First TESS Hot Jupiter* Wang S. et al. 2019, AJ, 157, 51
- https://asnova.org/2019/02/01/update-on-the-search-for-planets-with-tess/
- Yale News, the Metallicity Study https://news.yale.edu/2018/10/24/some-planetary-systems-just-arent-heavy-metal
- AAS Afternoon Astronomy Coffee, *the Metallicity Study* Brewer, Wang S. et al. 2018, APJL, 867, 3 <u>https://aas.org/posts/news/2018/09/afternoon-astronomy-coffee-hangout-8-november</u>
- Xinjiang Observatory News, the Kepler-9 Relocation http://english.xao.ac.cn/ne/rn/201803/t20180307 190528.html
   Wang S. et al. 2018, AJ, 155, 73
- AAS NOVA, the Kepler Planet Uniformity Millholland, Wang S., Laughlin 2017, APJL, 849, 33 https://aasnova.org/2017/11/20/kepler-planets-tend-to-have-siblings-of-the-same-size/
- Centauri-Dreams Article, *the Updated Trappist-1 Mass* https://www.centauri-dreams.org/2017/04/25/further-work-on-trappist-1/
   Wang S. et al. 2017, arxiv:1704.04290
- Yale News, the 51 Pegasi b Fellowship Award https://news.yale.edu/2017/01/25/yale-s-songhu-wang-study-exoplanets-one-four-inaugural-51-pegasi-b-fellows
- Heising-Simons Foundation Article, the 51 Pegasi b Fellowship Award https://www.hsfoundation.org/fellow/songhu-wang/

### SELECTED TALKS AND CONFERENCES

### **10 Conference Talks**

- Invited Talk, Observational and Theoretical Aspects of Exoplanets, AOGSM Meeting, Aug. 2023 (Scheduled)
- Two Invited Talks, the 5<sup>th</sup> Young Scientist Forum of Planetary Science, Sanya, Mar. 2023 (Scheduled)
- Planeary Session Talk, AAS Exoplanet IV Conference, Vegas, May. 2022 Hot Jupiters are not as lonely as we thought
- Contributed Talk, ERES V, Cornell, Ithaca, Jun. 2019 The First Confirmation of a Hot Jupiter Detected by TESS
- Contributed Talk, AAS, Seattle, WA, Jan. 2019 HD202772A b: the first confirmation of a hot Jupiter discovered by TESS
- Contributed Talk, Palomar Scientific Conference, Caltech, CA, Jul. 2018 Trappist-1: Planets know about each other
- Contributed Talk, Exoplanets and Planet Formation, T.D. Lee Institute (TDLI), Shanghai, China, Dec. 2017 A New Look at an Old Classic: Kepler-9's Obliquity, Masses, and Resonant Properties
- Contributed Talk, Kepler Scientific Conference, NASA Ames, Pasadena, Jun. 2017 Updated Masses for Trappist-1 Planets with K2
- Contributed Talk, ERES III, Yale, New Haven, Jun. 2017 From K2 to K2
- Contributed Talk, Time-Domain Astronomy Conference, Tsinghua University, China, Sep. 2013 Exoplanet Detection with CSTAR

# 11 invited Colloquia

- Colloquium, University of Illinois at Urbana-Champaign, Apr. 2023 (Scheduled)
- Remote Colloquium, Valparaiso University, Indiana, Apr. 2021 Setting the Solar System into Its Larger Context
- Remote Colloquium, IU Physics Department, Indiana, Apr. 2021 Placing the Solar System into the Galactic Exoplanet Census
- Remote Colloquium, Peking University, Feb. 2020
   Placing the Solar System into the Big Picture
- Colloquium, UT San Antonio, Feb. 2020 Solar System and Beyond
- Colloquium, New Mexico State University, Feb. 2020
   Probing the Fundamental Geometry of Exoplanetary Systems
- Colloquium, University of Alabama, Tuscaloosa, Feb. 2020
   Comparing Exoplanetary Systems with the Solar System

- Colloquium, Indiana University Bloomington, Jan. 2020 Placing the Solar System into the Big Picture
- Colloquium, University of Miami, Nov. 2019 Lessons from the Discovery of 51 Pegasi b
- Colloquium, New Mexico State University, NM, Mar. 2019 Placing Solar System into its Larger Cosmic Context
- Colloquium, Xinjiang Observatory, China, Aug. 2018
   From K2 to K2

### 14 Talks for Symposia, Summits, Worshops, and Regional Meetings

- Contributed Talk, 51 Pegasi b Fellowship Summit, San Francisco, Aug. 2022 Hot Jupiters are not as lonely as we thought
- Remote Contributed Talk, ET-2.0 Worshop, Shanghai Astronomical Observatory, Nov. 2020 Probing the Galactic Planetary Census with Both Space-based and Ground-based Telescopes
- Remote Contributed Talk, GTC Workshop, Qingdao, Aug. 2019 Testing the Copernican Principle with Precision Radial Velocities
- Contributed Talk, 51 Pegasi b Fellowship Summit, San Francisco, Jul. 2019 Lifting the Confusion — A Case Study in Using Ground-Based Follow up to Confirm HD 202772A b
- Contributed Talk, Connecticut Exoplanet Picnic, Wesleyan, Jul. 2019 CHIRON×TESS: The First Confirmation of a Hot Jupiter Detected by TESS
- Contributed Talk, Sagan Fellow Symposium, Caltech, CA, Nov. 2018 HD202772A b: the first confirmation of a hot Jupiter discovered by TESS
- Contributed Talk, TESS Scientific Meeting, MIT, Cambridge, Oct. 2018 Lifting the Confusion — A Case Study in Using Ground-Based Follow Up to Confirm HD 202772A b
- Contributed Talk, 51 Peg b Fellowship Summit, San Francisco, Aug. 2018
   51 Pegasi b and Beyond
- Contributed Talk, Boston Area Exoplanet Meeting, Harvard, Massachusetts, Mar. 2018 Kepler-9: Connecting Hot Jupiters with Small Planets
- Contributed Talk, 51 Peg b Fellowship Summit, Los Altos, Aug. 2017 The Search for New Worlds
- Contributed Talk, Connecticut Exoplanet Picnic, Wesleyan University, May. 2017 Transit and Transit Timing Variations
- Contributed Talk, CHS Fellowship Symposium, University of Bern, Switzerland, Feb. 2016 Multifaceted Exoplanet Detection
- Contributed Talk, Antarctica Astronomy Workshop, Nanjing University, China, Oct. 2013 Exoplanet Candidates in the CSTAR Field
- Contributed Talk, Observational Astronomy Summer School, KIAA, China, Oct. 2011 High Precision Differential Photometry of the WASP-33b Using the BATC Telescope

### **37** Seminar and Lunch Talks

- <sup>o</sup> Group Meeting Talk, Planet Fomration Group, CCA, Mar. 2023 (Scheduled)
- <sup>•</sup> Lunch Talk, CCA, Mar. 2023 (Scheduled)
- Seminar, Notre Dame, Feb. 2023
- Remore ET Seminar, Shanghai, Nov. 2022
- On the Origin of Short-period Planets
- Remote Seminar, Princeton Instruments, Shanghai, May. 2022 Placing Our Solar System into the Big Picture
- Remote CEHW seminar, Penn State University, Apr. 2022
   Hot Jupiters are not as lonely as we thought
- Lunch Talk, Indiana University, Apr. 2022
   Hot Jupiters are not as lonely as we thought
- Remote Public Lecture, Indiana Astronomical Society, Oct. 2021 Probing Exoplanetary Geometries
- Remote Lunch Talk, Yunnan University, Sep. 2021 Exoplanetary Geometries

- Remote Seminar, Aarhus University Denmark, May. 2021 Setting Solar System into Its Larger Cosmic Context
- Remote Seminar, IU's Astronomy Club, Sep. 2020 What Should We Do in the Future?
- Remote Seminar, CAS South American Center for Astronomy, May. 2020 Probing the Fundamental Geometry of Exoplanetary Systems
- Lecture, Williams College, Massachusetts, Jan. 2020
   Beyond Our Solar System
- Seminar, Carnegie Observatory, Pasadena, Jan. 2020 Origins of Hot Jupiters
- Cahill Seminar, Caltech, Jan. 2020 Connecting Super-Earths with Gas Giants
- CHEW Seminar, Penn State University, Dec. 2020
   Comparing Exoplanetary Systems with the Solar System
- Group-Meeting Talk, Josh Winn's Group Meeting, Princeton, Dec. 2020 Origins of Hot Jupiters
- Origins Seminar, University of Arizona, Nov. 2020 Placing the Solar System into the Big Picture
- Seminar, Center for Computational Astronomy, NY, Sep. 2019 The Dynamical Consequence of In-Situ Mass Boost
- Lecture, Williams College, Massachusetts, Jan. 2019 Setting Solar System into its Larger Cosmic Context
- Seminar, UCLA, LA, Jan. 2019 Quiescent or Dramatic? the Origin of Hot Jupiters
- Seminar, Yale, New Haven, Nov. 2018
   Exoplanetary Diversity and Uniformity
- Group-Meeting Talk, Josh Winn's Group Meeting, Princeton, New Jersey, Sep. 2018 From Antarctica to TESS
- Seminar, AMNH, New York, Jun. 2018 From Hot Jupiters to Small Planets
- Lecture, Williams College, Massachusetts, Jan. 2018 The Solar System in the Context of Exoplanetary Systems
- Seminar, Nanjing University, Nanjing, China, Dec. 2017 Origins of Exoplanets
- Seminar, Purple Mountain Observatory, Nanjing, China, Dec. 2017 Placing the Solar System into the Galactic Planetary Census
- Seminar, National Astronomical Observatories of China (NAOC), Beijing, China, Dec. 2017 Understanding Planet Formation with Telescopes Sized from 10cm to 10m
- Seminar, Tsing Hua University, Beijing, China, Dec. 2017 Planets Know about Each Other
- Lunch Talk, The Kavli Institute for Astronomy and Astrophysics (KIAA), Beijing, China, Dec. 2017 Probing the Copernican Principle: Are We Special?
- Group-Meeting Talk, Heather Knutson's Group Meeting, Caltech, Pasadena, Aug. 2017 Transit Timing Variations
- Seminar, Yale Society of Physics Students, Yale, New Haven, Jul. 2017 Solar System and Beyond
- Public Talk, Hartness Workshop, Vermont, Jul. 2017 Finding Exoplanets with Small Telescopes
- Seminar, ETH Zurich, Switzerland, Feb. 2016 Multifaceted Exoplanet Detection
- Seminar, University of Zurich, Switzerland, Feb. 2016 Multifaceted Exoplanet Detection
- Seminar, Geneva Observatory, Switzerland, Feb. 2016 Multifaceted Exoplanet Detection
- Seminar, Xinjiang Observatory, China, Jan. 2014

### **5** Conference Posters

- Poster, TESS Science Conference, Boston, Aug. 2019 First TESS Hot Jupiter
- Poster, ERES IV, Penn State, Pennsylvania, Jun. 2018 Are Multi-Planetary Systems Generally Co-Planar?
- 2 Posters, Sagan Exoplanet workshop, Caltech, Jul. 2015
   *Time-Domain Astronomy with CSTAR the Chinese Small Telescope ARray Photometric Follow-Up Observations of Transiting Hot Jupiter HAT-P-29*
- Poster, ASA Annual Scientific Meeting, UNSW, Australia, Jun. 2012 The Inhomogeneous Effect of Clouds on the CSTAR Photometry