Jeremy L. Smallwood

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Employment

Dodge Family Prize Fellowship in Astrophysics [2024 – Present]
University of Oklahoma, Norman, OK, USA

ASIAA Distinguished Postdoctoral Fellowship [2022 – 2024]
Academia Sinica Institute of Astronomy and Astrophysics, Taipei, Taiwan

CASPER Postdoctoral Scholar [2021 – 2022]
Baylor University, Waco, Texas, USA

NCTS Prize Postdoctoral Fellowship [2021]
National Center for Theoretical Science Physics Division, Taiwan

Education

PhD in Astronomy [2017 – 2021]
University of Nevada, Las Vegas
Supervised by Professor Rebecca Martin

MS in Astronomy [2015 – 2017]
University of Nevada, Las Vegas

BA Astrophysics [2010 – 2015]
Baylor University, Waco, Texas

Publications

Total Refereed: 28; 1st-authored: 20; Citations: 379; h-index: 11; i10-index: 12. Statistics from ADS.

1st-authored

20. The polar debris disc around 99 Herculis: A potential signpost for polar circumbinary planets
Smallwood J. L., DeRocco W., Qin Z., Sefilian A., 2025, MNRAS Letters, accepted, ADS

19. Polar alignment of a circumbinary disc around a brown dwarf binary
Smallwood J. L., Baycroft T. A., Triaud A. H. M. J., Nealson R. P., 2025, MNRAS, 542, L85, ADS

18. Circumbinary accretion as a diagnostic for binary–disc misalignment
Smallwood J. L., Li Y-P., Deng H., Franchini A., 2025, MNRAS, 536, 3431, ADS

17. Shedding light on the origin of the broken misaligned circumtriple disk around GW Ori
Smallwood J. L., Lubow H. S., Martin R. G., 2025, ApJL, 979, L14, ADS

16. Observational Signatures of Dust Traffic Jams in Polar-aligning Circumbinary Disks
Smallwood J. L., Nealon R., Yen H-W., Pinte C., Longarini C., Aly H., Lin M-K., 2024, ApJL, 976, L23, ADS

15. Polar alignment of a dusty circumbinary disc – II. Application to 99 Herculis
Smallwood J. L., Lin M-K., Nealon R., Aly H., Longarini C., 2024, MNRAS, 534, 4018, ADS

14. Polar alignment of a dusty circumbinary disc – I. Dust ring formation
Smallwood J. L., Lin M-K., Aly H., Nealon R., Longarini C., 2024, MNRAS, 532, 1068, ADS

13. Formation of misaligned second-generation discs through flyby encounters
Smallwood J. L., Nealon R., Cuello N., Dong R., Booth R. A., 2024, MNRAS, 527, 2094, ADS

12. Formation of the warped debris disc around β Pictoris
Smallwood J. L., 2023, MNRAS, 523, 3526, ADS

11. Exciting spiral arms in protoplanetary discs from flybys
Smallwood J. L., Yang C-C., Zhu Z., Martin R. G., Dong R., Cuello N., Isella A., 2023, MNRAS, 521, 3500, ADS

10. Formation of polar circumstellar discs in binary star systems
Smallwood J. L., Martin R. G., Lubow H. S., 2023 MNRAS, 520, 2952, ADS

9. Accretion onto a binary from a polar circumbinary disc
Smallwood J. L., Lubow H. S., Martin R. G., 2022, MNRAS, 514, 1249, ADS

8. GW Ori: circumtriple rings and planets
Smallwood J. L., Nealon R., Chen C., Martin R. G., Bi J., Dong R., Pinte C., 2021, MNRAS, 508, 392, ADS

7. On the role of resonances in polluting white dwarfs by asteroids
Smallwood J. L., Martin R. G., Livio M., Veras D., 2021, MNRAS, 504, 3375, ADS

6. Sustained Kozai-Lidov oscillations in misaligned circumstellar gas discs
Smallwood J. L., Martin R. G., Lubow H. S., 2021, ApJ, 907, L14, ADS

5. Formation of the polar debris disc around 99 Herculis
Smallwood J. L., Franchini A., Chen C., Becerril E., Lubow S. H., Yang C-C., Martin R. G., 2020, MNRAS, 494, 487, ADS

4. Alignment of a circumbinary disc around an eccentric binary with application to KH 15D
Smallwood J. L., Lubow S. H., Franchini A., Martin R. G., 2019, MNRAS, 486, 2919, ADS

3. Investigation of the asteroid collision model for the repeating fast radio bursts
Smallwood J. L., Martin R. G., Zhang B., 2019, MNRAS, 485, 1367, ADS

2. White dwarf pollution by asteroids from secular resonances
Smallwood J. L., Martin R. G., Livio M., Lubow S. H., 2018, MNRAS, 480, 57, ADS

1. Asteroid impacts on terrestrial planets: The effects of super–Earths and the role of the ν_6 resonance
Smallwood J. L., Martin R. G., Lepp S., Livio M., 2018, MNRAS, 473, 295, ADS

Student-led publications (as supervisor)

3. Fast radio bursts from asteroid-neutron star collisions triggered by the von Zeipel-Lidov-Kozai instability
Qin Z., **Smallwood J. L.**, Liu S., Gao Y., 2025, ApJ, under revision

2. Evolution of dust in a protoplanetary disc driven by stellar flybys: implications for the streaming instability
Su W-S., **Smallwood J. L.**, Lin M-K., Yang C-C., Cuello N., 2025, MNRAS, under revision

1. Misaligned circumbinary discs around unequal-mass eccentric binaries: alignment, morphology, and binary accretion variability
Yang R., **Smallwood J. L.**, Deng H., Li Y., Franchini A., Dong R., Liu S., 2025, MNRAS, re-submitted

Co-authored

5. Disc–planet misalignment from an unstable triple system: IRAS04125
Nealon R., **Smallwood J. L.**, Aly H., Winter A. J., Longarini C., Cuello N., Veras D., Alexander R., 2025, MNRAS, 540, L84, ADS

4. Polar alignment of a massive retrograde circumbinary disc around an eccentric binary
Abod C., Chen C., **Smallwood J. L.** et al., 2022, MNRAS, 517, 732, ADS

3. GW Ori: interations between a triple-star system and its circumtriple disk in action
Bi J., van der Marel N., Dong R., Muto T., Martin R. G., **Smallwood J. L.** et al., 2020, ApJ, 895, L18, ADS

2. Asteroid belt survival through stellar evolution: dependence on the stellar mass
Martin R. G., Livio M., **Smallwood J. L.**, Chen C., 2020, MNRAS, 494, L17, ADS

1. Late delivery of nitrogen to Earth
Chen C., **Smallwood J. L.**, Martin R. G., Livio M., 2019, AJ, 157, 80, ADS

Awards and Grants

Dodge Family Price Fellowship in Astrophysics ($\sim \$225,000$ USD)	[2024-present]
Poster Award at "Postdoc Research & Scholarly Activity Day", University of Oklahoma	[2025]
Poster Award at "DISC Inaugural Data Science Symposium", University of Oklahoma	[2025]
DISC Postdoctoral Fellowship, University of Oklahoma ($\sim \$5,000$ USD)	[2024-2025]
Tsinghua Astrophysics Outstanding (TAO) Fellowship (declined)	[2024]
ASIAA Distinguished Postdoctoral Fellowship ($\sim \$65,000$ USD)	[2022-2024]
Taiwan Outstanding Postdoctoral Fellowship Award ($\sim \$15,000$ USD)	[2023]
Academia Sinica Travel Grant	[2023]
UNLV Outstanding STEM Dissertation Award	[2022]
UNLV Research Assistant Fellowship	[2021]
UNLV Graduate Assistant Fellowship	[2016 – 2021]
UNLV Golden Medallion Award	[2021]
UNLV Summer Research Scholarship ($\sim \$5,000$ USD)	[2020]
UNLV Graduate Showcase Award	[2020]
Wolzinger Family Science Research Fellowship ($\sim \$10,000$ USD)	[2019–2020]
NASA Nevada Space Grant Consortium Fellowship ($\sim \$18,000$ USD)	[2017 – 2018]
UNLV Outstanding STEM Thesis Award	[2018]
Baylor University NSF Summer Research Fellowship	[2014]

Teaching Experience

Instructor for ASTR 1523 (Life in the Universe), OU	[2025]
Astronomy Lab Instructor, UNLV	[2016 – 2021]
Guest Lecturer of Introductory Astronomy: the Solar System, UNLV	[2017]
Teaching Assistant for Astronomy Laboratory, Baylor Uni.	[2015]
Teaching Assistant for Physics of Sound and Acoustics Laboratory, Baylor Uni.	[2015]
Teaching Assistant for Partial Differential Equations, Baylor Uni.	[2014]
Supplemental Instructor in Chemistry, Baylor Uni.	[2012 – 2013]

Academic Service

Peer review referee for *ApJ*, *MNRAS*, *Nature Astronomy*, *PSJ*, and *A&A*	[2019 – Present]
Session chair for Microlensing session at Rogue Worlds 2	[2025]
Session chair for Architectures 2 at Exoplanets IV	[2022]

Mentorship and Departmental Activities

Mentoring a PhD student at the University of Oklahoma [2025 – Present]
- Teddy Welsh – "Circumbinary planet-disc interactions"

Mentoring a student through the University of Oklahoma REU program [2025 – Present]
- Sheina Peralta – "Polar alignment of dusty circumbinary discs around equal mass binaries"

Mentoring an undergraduate student at University of Oklahoma [2025 – Present]

• Emily Thrun – "Planet-disc interactions"

Mentoring an undergraduate student at University of Oklahoma [2025 – Present]
• Michael Munnelly – "Stellar flybys around circumbinary discs"

Mentoring three students from the "Summer School for Planet Formation and Protoplanetary Disks" [2024 – Present]
(China Center of Advanced Science and Technology)
• Ruiqi Yang – "Circumbinary accretion onto unequal mass binary star systems"
• Ho Wan Cheng – "The growth of inclined planetary systems"
• Zhizhen Qin – "Fast radio bursts from asteriod-Neutron star collisions from the KL instability"

Mentoring a student from the ASIAA Summer Student Program [2023 – Present]
• Wei-Shan Su – "The evolution of dusty spiral arms excited from flybys"

Organizer of the Baylor Astronomy Journal Club, Baylor Univeristy [2021-2022]
Mentored an undergraduate student in research (planet habitability) and classes, UNLV [2019–2021]
Organizer of the UNLV Astro Coffee and Journal Club, UNLV [2017–2018]

Professional Development and Summer Schools

Exploring Planetary Systems in the Era of Time-domain Astronomy (Accepted) [2026]
Honolulu, Hawaii
– Three week summer school

2024 Protoplanetary Disc and Planet Formation Summer School and Workshop [2024]
Beijing, China
– Mentored three students with research projects

Research Collaboration with Dr. Ruobing Dong [2023]
University of Victoria, Victoria, Canada
– Visited Dr. Dong to increase my capabilities of producing synthetic observations

Research Collaboration with Dr. Daniel Price [2019]
Monash University, Melbourne, Australia
– Visited Dr. Price to increase my capabilities of hydrodynamical simulations.

Tsung-Dao Lee Institute (TDLI) Summer School in Computational Astrophysics [2017]
Minhang Campus of Shanghai Jiao Tong University in Shanghai, China
– Summer school on astrophysical fluid dynamics lectured by Dr. Daniel Price.

Talks

Invited Talks

Cosmos Seminar, University of Texas, Austin [2026]
Physics & Astronomy Colloquium, Baylor University [2026]
Astronomy Colloquium, National Tsing Hua University [2025]
Astronomy Colloquium, National Taiwan Normal University [2025]
Astronomy Seminar, Academia Sinica, Institute of Astronomy and Astrophysics [2025]
Astronomy Seminar, Yale University [2025]
Physics Colloquium, Baylor University [2025]
The formation and long-term evolution of circumbinary planetary systems across the H-R diagram [2025]
Astronomy Colloquium, University of Geneva [2025]

Physics & Astronomy Colloquium, University of Georgia [2024]
Lunch talk, University of Oklahoma [2024]
Astronomy Colloquium, National Taiwan Normal University [2024]
Astronomy Colloquium, Academia Sinica, Institute of Astronomy and Astrophysics [2024]
Astronomy Colloquium, Tsinghua University [2024]
50 years of Binaries and Disks: Lubow@75, University of Nevada, Las Vegas [2024]
Simulating Physics in Celestial Ecosystem (SPICE): Star, Disk, and Planet Formation, Sendai, Japan [2024]
Joint Franco-Australian 5th Phantom+MCFOST Users Workshop 2024, Monash University [2024]
Astronomy Colloquium, Southern University of Science and Technology [2023]
Astronomy Colloquium, Shanghai Astronomical Observatory [2023]
Astronomy Colloquium, Chiense University of Hong Kong [2023]
Astronomy Colloquium, Hong Kong University Laboratory of Space Research [2023]
Astronomy Colloquium, University of Oklahoma [2023]
Physics & Astronomy Colloquium, University of Alabama [2023]
Astronomy Colloquium, University of Nevada, Las Vegas [2023]
Astronomy Colloquium, National Central University [2023]
Astronomy Colloquium, Dominion Astrophysical Observatory [2023]
Astronomy Colloquium, National Taiwan Normal University [2023]
Coffee talk, University of Cambridge [2022]
Astronomy Colloquium, University of Warwick [2022]
Astronomy Colloquium, University of St. Andrews [2022]
Astronomy Colloquium, University of Edinburgh [2022]
Astronomy Colloquium, Academia Sinica, Institute of Astronomy and Astrophysics [2021]
Astronomy Colloquium, University of Texas, San Antonio [2021]
Astronomy Colloquium, University of Florida [2021]
Astronomy Colloquium, Rice University [2021]
Astronomy Colloquium, Baylor University [2021]
Astronomy Colloquium, University of Southern Queensland [2019]
Astronomy Colloquium, University of New South Wales [2019]
Astronomy Colloquium, Australian National Institute for Theoretical Astrophysics [2019]
Homecoming Physics Talk, Baylor University [2018]

Contributed Talks

Rogue Worlds Two [2025]
International Conference on Exoplanets and Planet Formation [2025]
Multiplicity in Young Stars [2025]
Rogue Worlds 2024: Uniting Theory and Observation [2024]
EAS 2024: Stars, discs & planets: dynamics & evolution in multiple systems [2024]
Exoplanets & Planet Formation Workshop, Yanqing, Beijing, China [2023]
Asia Oceania Geosciences Society 20^{th} Annual Meeting [2023]
European Astronomical Society Annual Meeting [2023]
The inner disk of young stars: accretion, ejection, and planet formation, Corsica, France [2023]
Protostar and Planets VII [2023]
East-Asian ALMA Science Workshop 2023 [2023]
Taiwanese Theoretical Astrophysics Workshop II [2022]
Planet and binary formation in gravitationally unstable protoplanetary discs in the high-resolution era [2022]
NCTS-ASIAA Workshop: Stars, Planets, and Formosa [2022]
European Astronomical Society Annual Meeting [2022]
Exoplanets IV, Las Vegas, Nevada [2022]
Lunar and Planetary Science Conference [2022]
NCTS Annual Theory Meeting [2021]
SPF2: Star and Planet Formation in the Southwest, Biosphere 2, Oracle, Arizona [2018]
UNLV Journal Club Talk, University of Nevada, Las Vegas [2017]

Lunar and Planetary Conference	[2015]
Undergraduate Research Symposium, Baylor University	[2014]
Texas Astronomy Undergraduate Research Symposium, University of Texas, Austin	[2014]

Press Releases

”This May Be the First Planet Found Orbiting 3 Stars at Once”, The New York Times	[2021]
”This May Be The First Planet Ever Found Orbiting Three Stars At Once”, IFL Science	[2021]
”UNLV grad’s team may have found first planet orbiting 3 stars”, Las Vegas Review Journal	[2021]
”Exoplanet in a triple star system may orbit all three at once”, New Scientist	[2021]
”UNLV astronomers discover planet appearing to orbit three stars”, Fox 5 News	[2021]
”The first planet to orbit three stars”, Italian National Institute of Astrophysics Journal	[2021]
”Super-Earths draw asteroids to other worlds, which may seed life”, New Scientist	[2017]

Technical Skills: Computer Modeling and Programming

Programming Languages: Python, Julia, MATLAB, Mathematica, Fortran, C++, Shell Script, HTML

Simulation Techniques: Smoothed Particle Hydrodynamics (SPH), N-body Simulations

Documentation and Typesetting: LaTeX

Modeling and Analysis Tools: MATLAB, Mathematica

Scripting and Automation: Shell Scripting for data processing and workflow automation