Jamie Alexander Powell Law-Smith

Department. of Astronomy & Astrophysics
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Citizenship: Canada, UK, US permanent resident

EDUCATION

University of California Santa Cruz, Ph.D. in Astronomy & Astrophysics, 2015-2021 (expected)
Harvard University, A.B. cum laude with honors in Physics, Astrophysics (double), 2010-2014

POSITIONS HELD

PhD student, University of California Santa Cruz, 2015-present

RESEARCH INTERESTS

High energy astrophysics theory, tidal disruption events, black holes, neutron stars, common envelope evolution, gravitational wave sources, host galaxies, AGN accretion disks, de Sitter space in string theory

AWARDS

AAS Doxsey Prize, 2021
Elmer A. Fridley Scholarship in the Physical Sciences (UC Santa Cruz), 2020
Regents' Fellowship (UC Santa Cruz), 2019
Whitford Prize for highest achievement in research, coursework, and preliminary exam (UCSC), 2017
NR Tuition Fellowship (UC Santa Cruz), 2015
Leo Goldberg Award for outstanding Junior thesis in Astronomy (Harvard University), 2013
David Rockefeller International Experience Grant, 2012
Harvard College Research Program Fellowship (Harvard University), 2012

PUBLICATIONS

∗ indicates alphabetical authorship order. † indicates advised student. Up-to-date list available on ADS.

1. **Law-Smith, J. A. P.**, Everson, R. W., Ramirez-Ruiz, E., de Mink, S. E., van Son, L. A. C., Götberg, Y., Zellmann, S., Vigna-Gómez, A., Renzo, M., Wu, S., Schrøder, S. L., Foley, R. J., Hutchinson-Smith, T., 2020, "Successful Common Envelope Ejection and Binary Neutron Star Formation in 3D Hydrodynamics," submitted to ApJ [arXiv/astro-ph:2011.06630]
2. **Law-Smith, J. A. P.**, Coulter, D. A., Guillochon, J., Mockler, M., & Ramirez-Ruiz, E., 2020, "Stellar Tidal Disruption Events with Abundances and Realistic Structures (STARS): Library of Fallback Rates," ApJ, 905, 141 [arXiv/astro-ph:2007.10996]
3. ∗ Dine, M., **Law-Smith, J. A. P.**, Sun, S., Wood, D., & Yu, Y., 2021, "Obstacles to Constructing de Sitter Space in String Theory," JHEP, 50 (2021) [arXiv/hep-th:2008.12399]

4. † Dodd, S. A., **Law-Smith, J. A. P.**, Auchettl, K., Ramirez-Ruiz, E. & Foley, R. J., 2020 "The Landscape of Galaxies Harboring Changing-Look Active Galactic Nuclei in the Local Universe," ApJL, 907, L21 [arXiv/astro-ph:2010.10527]
5. David O. Jones, Ryan J. Foley, Gautham Narayan, et al., incl. **Law-Smith, J. A. P.**, 2020, "The Young Supernova Experiment: Survey Goals, Overview, and Operations," submitted to ApJ [arXiv/astro-ph:2010.09724]
6. Hung, T., Foley, R. J., Ramirez-Ruiz, E., Dai, J. L., Auchettl, K., Kilpatrick, C. D., Mockler, B., Brown, J., Coulter, D. A., Dimitriadis, G., Holoien, H., **Law-Smith, J. A. P.**, Piro, A. L., Rest, A., Rojas-Bravo, C., Siebert, M. R., 2020, "Prompt Accretion Disk Formation in an X-Ray Faint Tidal Disruption Event," ApJ, 903, 31 [arXiv/astro-ph:2003.09427]
7. French, K. D., Wevers, T., **Law-Smith, J. A. P.**, Graur, O., & Zabludoff, A. I., 2020, "The Host Galaxies of Tidal Disruption Events," Space Sci Rev 216, 32 [arXiv/astro-ph:2003.02863]
8. Rossi, E. M., Stone, N. C., **Law-Smith, J. A. P.**, MacLeod, M., Lodato, G., Dai, J. L., & Mandel, I., 2020, "The Process of Stellar Tidal Disruption by Supermassive Black Holes. The first pericenter passage," to appear in Springer Space Science Reviews [arXiv/astro-ph:2005.12528]
9. **Law-Smith, J. A. P.**, Guillochon, J., & Ramirez-Ruiz, E., 2019, "The Tidal Disruption of Sun-like Stars by Massive Black Holes," ApJL, 882, L25 [arXiv/astro-ph:1907.04859]
10. † Gallegos-Garcia, M., **Law-Smith, J. A. P.**, & Ramirez-Ruiz, E., 2018, "Tidal Disruptions of Main-sequence Stars of Varying Mass and Age: Inferences from the Composition of the Fallback Material," ApJ, 857, 109 [arXiv/astro-ph:1801.03497]
11. **Law-Smith, J. A. P.**, Ramirez-Ruiz, E., Ellison, S. L., & Foley, R. J., 2017, "Tidal Disruption Event Host Galaxies in the Context of the Local Galaxy Population," ApJ, 850, 22 [arXiv/astro-ph:1707.01559]
12. **Law-Smith, J. A. P.**, MacLeod, M., Guillochon, J., Macias, P., & Ramirez-Ruiz, E., 2017, "Low-mass White Dwarfs with Hydrogen Envelopes as a Missing Link in the Tidal Disruption Menu," ApJ, 841, 132 [arXiv/astro-ph:1701.08162]
13. **Law-Smith, J. A. P.** & Eisenstein, D. J., 2017, "The Color and Stellar Mass Dependence of Small-Scale Galaxy Clustering in SDSS-III BOSS," ApJ, 836, 87 [arXiv/astro-ph:1702.03933]

SOFTWARE

1. **Law-Smith, J. A. P.**, Coulter, D. A., & Mockler, B., 2020, "`jamielaw-smith/STARS_library`", v1.0.5, Zenodo, doi:10.5281/zenodo.4062018

INVITED TALKS

Caltech TAPIR Seminar, Caltech, Pasadena, CA, 2020
Harvard CfA Galaxies & Cosmology and Stars & Planets Seminar, Center for Astrophysics, Harvard University, Cambridge, MA, 2020
Princeton University, Quataert group meeting, Princeton, NJ, 2020
SFSU Colloquium, Department of Physics and Astronomy, San Francisco State University, 2020
MIT Brown Bag Lunch, MIT, Cambridge, MA, 2020
UC Berkeley "Explosive Astro", UC Berkeley, Berkeley, CA 2020

Harvard-Monash Meeting, School of Physics & Astronomy, Monash University, Australia, and Department of Astronomy, Harvard University, Cambridge, MA, 2020
Northwestern CIERA Seminar, Department of Astronomy, Northwestern University, Evanston, IL, 2020
DARK Cake Talk, DARK Cosmology Centre, Niels Bohr Institute, University of Copenhagen, 2020
Compact Objects for All, Lund Observatory, Sweden, 2020

CONTRIBUTED TALKS

237th Annual Meeting of the AAS, Virtual, 2021
Tidal Disruptions in Kyoto: Confronting Theory with Observations, Kyoto, Japan, 2020
Dunlap Institute for Astronomy & Astrophysics, University of Toronto, Toronto, Canada, 2018
Using Tidal Disruption Events to Study Supermassive Black Holes, Aspen, CO, 2018
TDE17: Piercing the sphere of influence, Cambridge, UK, 2017
UC Santa Cruz FLASH Seminar, Santa Cruz, CA, 2017
UC Santa Cruz Transient Lunch, Santa Cruz, CA, 2017
Jerusalem Tidal Disruption Event Workshop, Jerusalem, Israel, 2015
TDE Fest at UCSC, Santa Cruz, CA, 2015

TEACHING

Astronomy 2, Overview of the Universe, UCSC, Teaching Assistant, 2021
Astronomy 1, Introduction to the Cosmos, UCSC, Teaching Assistant, 2019
Astronomy 111, Order of Magnitude Astrophysics, UCSC. Taught half of lecture (~40 students), 2018
Astronomy 119, Introduction to Scientific Computing, UCSC, Teaching Assistant, 2018
Astronomy 111, Order of Magnitude Astrophysics, UCSC. Taught half of lecture (~25 students), 2016
Astronomy 111, Order of Magnitude Astrophysics, UCSC. Taught half of lecture (~25 students), 2015
Physics 15B Laboratory, Introductory Electromagnetism, Harvard University, Teaching Fellow, 2011

OUTREACH

Mentor, Lamat Summer Research Program, UCSC. Mentor for undergraduate research program aimed at underrepresented minorities. Helped students with research and posters that were presented at conferences, 2016.

Visiting Teacher, Taktse International School, Sikkim, India. Physics, Astronomy, and Computer Science teaching, curriculum design, and mentoring for K-12. Developed new Computer Science course and helped two mentees become first-generation college students at schools in the US, 2014.

STUDENTS ADVISED

Chang Liu, undergraduate (Peking University), 2020-present
Monica Gallegos-Garcia, undergraduate (UCSC); paper published; now PhD at Northwestern, 2015-2018
Priscilla Camacho Olachea, “post-bac” student (UCSC), 2016-2017

SKILLS

Programming languages: Python, C/C++, FORTRAN, Javascript, SQL, MATLAB, Mathematica

Codes: FLASH, MESA
High-performance computing: use of 10+ supercomputing facilities, incl. NASA Pleiades, >1e7 CPU-hrs.
Languages: English (native), French (fluent)