

Jamie Alexander Powell Law-Smith

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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

Harvard ITC Fellow, Harvard-Smithsonian Center for Astrophysics, starting Sept 2021  
PhD student, University of California Santa Cruz, 2015-2021 (expected)

## RESEARCH INTERESTS

Black holes, tidal disruption events, common envelope evolution, gravitational wave sources, extragalactic astronomy, active galactic nuclei, vacuum decay, de Sitter space in string theory

## AWARDS

Harvard ITC Fellowship (5-yr), 2021  
IAS Membership, 2021, *declined*  
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

## GRANTS

*Collaborator*, NSF, "Multiple Approaches to Multiple-Messenger Astronomy", \$688K, 2019-2022  
*Collaborator*, NSF MRI, "Acquisition of a High Performance Computer for Computational Science at UC Santa Cruz", \$1.547 million, 2018-2021  
*Co-I*, NASA HEC supercomputing allocation, "Modeling of Panchromatic Tidal Disruption Flares", 400K SBUs, 2018  
*Co-I*, NASA ATP TCAN, "Modeling of Panchromatic Transients", \$397K, 2014-2018  
*Collaborator*, NSF, "Tidal Disruption of Stars in Galaxy Centers: Connecting Models to Observations", \$264K, 2016-2019

*Co-I*, NASA HEC supercomputing allocation, “Modeling of Panchromatic Tidal Disruption Flares”, 213K SBUs, 2017

*Co-I*, NASA HEC supercomputing allocation, “Modeling of Panchromatic Tidal Disruption Flares”, 102K SBUs, 2016

## PUBLICATIONS

\* indicates alphabetical authorship order. † indicates advised student. Up-to-date list available on [ADS](#).

1. \* Dine, M., **Law-Smith, J. A. P.**, Sun, S., Wood, D., & Yu, Y., 2021, “Obstacles to Constructing de Sitter Space in String Theory,” JHEP, 02, 050 [arXiv/hep-th:2008.12399]
2. Jones, D. O., Foley, R. J., et al., incl. **Law-Smith, J. A. P.**, 2021, “The Young Supernova Experiment: Survey Goals, Overview, and Operations,” ApJ, 908, 143 [arXiv/astro-ph:2010.09724]
3. † Dodd, S. A., **Law-Smith, J. A. P.**, Auchettl, K., Ramirez-Ruiz, E. & Foley, R. J., 2021, “The Landscape of Galaxies Harboring Changing-Look Active Galactic Nuclei in the Local Universe,” ApJL, 907, L21 [arXiv/astro-ph:2010.10527]
4. Rossi, E. M., Stone, N. C., **Law-Smith, J. A. P.**, MacLeod, M., Lodato, G., Dai, J. L., & Mandel, I., 2021, “The Process of Stellar Tidal Disruption by Supermassive Black Holes. The first pericenter passage,” Space Sci Rev 217, 40 [arXiv/astro-ph:2005.12528]
5. **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]
6. **Law-Smith, J. A. P.**, Everson, R. W., Ramirez-Ruiz, E., de Mink, S. E., et al., 2020, “Successful Common Envelope Ejection and Binary Neutron Star Formation in 3D Hydrodynamics,” submitted to ApJ [arXiv/astro-ph:2011.06630]
7. Hung, T., Foley, R. J., et al., incl. **Law-Smith, J. A. P.**, 2020, “Double-peaked Balmer Emission Indicating Prompt Accretion Disk Formation in an X-Ray Faint Tidal Disruption Event,” ApJ, 903, 31 [arXiv/astro-ph:2003.09427]
8. **Law-Smith, J. A. P.**, Coulter, D. A., & Mockler, B., 2020, “jamielaw-smith/STARS\_library”, v1.0.5, Zenodo, doi:10.5281/zenodo.4062018
9. 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]
10. **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]
11. † 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]
12. **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]
13. **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]

14. **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]

## TALKS

\* indicates invited/review/plenary.

\*UT Austin Colloquium, Department of Astronomy, UT Austin, 2021  
237th Annual Meeting of the AAS, Virtual, 2021  
\*SFSU Colloquium, Department of Physics and Astronomy, San Francisco State University, 2020  
\*Caltech TAPIR Seminar, Caltech, Pasadena, CA, 2020  
\*Harvard CfA Galaxies & Cosmology and Stars & Planets Seminar, Cambridge, MA, 2020  
\*MIT Brown Bag Lunch, MIT, Cambridge, MA, 2020  
\*UC Berkeley “Explosive Astro”, UC Berkeley, Berkeley, CA 2020  
\*Harvard-Monash Meeting, Monash University, Australia, and Harvard University, USA, 2020  
\*Princeton University, Quataert group meeting, Princeton, NJ, 2020  
\*Northwestern CIERA Seminar, Northwestern University, Evanston, IL, 2020  
\*DARK Cake Talk, DARK Cosmology Centre, Niels Bohr Institute, University of Copenhagen, 2020  
Tidal Disruptions in Kyoto: Confronting Theory with Observations, Kyoto, Japan, 2020  
\*Compact Objects for All Conference (review talk), Lund Observatory, Sweden, 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 3, Introductory Astronomy: Planetary Systems, 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)

## MEDIA COVERAGE

EurekAlert AAAS, “New observations of black hole devouring a star reveal rapid disk formation”, 2020  
SciTechDaily, “Jaw Dropping Observations of Black Hole Devouring a Star Reveal Rapid Disk Formation”, 2020

NSF Research News, “New observations of black hole devouring a star reveal rapid disk formation”, 2020

IFLScience, “New Insights Into What Happens When A Black Hole Destroys A Star”, 2020

Cosmoquest, “New Observations of Black Hole Devouring a Star Reveal Rapid Disk Formation”, 2020

Science Examiner, “New Observations Of Black Hole Devouring A Star – First Solid Confirmation”, 2020

Technology.org, “New observations of black hole devouring a star reveal rapid disk formation”, 2020

Focus Technica, “Jaw Dropping Observations of Black Hole Devouring a Star Reveal Rapid Disk Formation”, 2020

NewsBeezer, “New observations of black hole devouring a star reveal rapid disk formation”, 2020

Archaeology News Network, “New Observations Of Black Hole Devouring A Star Reveal Rapid Disk Formation”, 2020

Science Daily, “New observations of black hole devouring a star reveal rapid disk formation”, 2020

Astrobites, “Double-Peak and Destroy: Accretion in a Tidal Disruption Event Reveals Itself”, 2020

UCSC News Center, “New observations of black hole devouring a star reveal rapid disk formation”, 2020

Cosmoquest, “Dual quasars; tidal disruption events; and a halo for Andromeda”, 2020

AAS Nova, “When Black Holes Shred Sun-Like Stars”, 2019

First hamburger sent into space (independent Harvard undergraduate project), 2014, covered by Jay Leno, Time Magazine, UK Daily Mail, Canadian Discovery Channel, Der Spiegel, Australian News, Village Voice, etc., >1 million views on YouTube