Jessica L. Birky

Contact

Office	Physics & Astronomy Building, Rm B317 3910 15th Ave NE, Seattle WA, 98195	Email	jbirky@uw.edu
Phone	+1 (510) 364-5254	Website	https://jbirky.github.io
		Github	https://github.com/jbirky

Research Interests

Large scale surveys, stars, stellar populations, galactic archaeology.
Computational physics, data analysis and modeling, machine learning and data-driven models.
Developing open source tools/code.

Education

PhD in Astronomy *(expected)* - University of Washington — 2019 - 2024
BS in Physics - University of California, San Diego — 2015 - 2019

Research Positions

Graduate Student Researcher - University of Washington — Aug 2019 - Present
DIRAC Institute ; Advisors : James Davenport, Rory Barnes — *Seattle, WA*
Topic : tidal evolution of eclipsing binaries in K2/TESS

Undergraduate Researcher - University of California, San Diego — May 2016 - May 2019
Cool Star Lab ; Advisor : Adam Burgasser — *La Jolla, CA*
Topic : spectroscopic parameters of low-mass stars using atmosphere models

Research Intern - Max Planck Institute für Astronomie — Summer 2017 & 2018
Stars & Milky Way groups ; Advisor : David Hogg — *Heidelberg, Germany*
Topic : data-driven models of M dwarfs

Honors and Awards

NSF Graduate Research Fellowship	2019 - 2024
MPIA Summer Intern Fellowship	2017, 18
UCSD Provost Honors	2018, 19
Frances Hellman Research Scholarship *(declined)*	2017
Physics Chair Challenge Award *(×3)*	2016, 17, 18
SJND Mathematics Achievement Award	2015
Denise Cervelli - Maddix Mathematics Scholarship	2014
M.M. Holm Science Scholarship	2013

Publications

Birky, J., Hogg, D. W., Mann, A., Burgasser, A. J., 2020, Temperatures and Metallicities for M dwarfs in the APOGEE Survey, ApJ, 892, 1.

Conference Presentations

Birky, J., Davenport, J. R. A, Brandt, T. (2020 January). Systematic Classification of TESS Eclipsing Binaries. Poster presentation at AAS Meeting 235, Honolulu HI.

Birky, J., Hogg, D. W., Mann, A. W., Burgasser, A. (2019 January). Precise Stellar Parameters for 10,000+ APOGEE M dwarfs. Poster presentation at AAS Meeting 233, Seattle, WA.

Birky, J., Hogg, D. W., Burgasser, A. (2018 January). Data-Driven Spectral Models for APOGEE M Dwarfs. Poster presentation at AAS Meeting 231, Washington DC.

Birky, J., Aganze, C., Burgasser, A., Theissen, C., Schmidt, S., Stassun, K., Teske, J., Bird, J. (2017 January). Modeling Stellar Parameters for High Resolution Late-M and Early-L Dwarf SDSS/APOGEE Spectra. Poster presentation at AAS Meeting 229, Grapevine TX.

Birky, J., Aganze, C., Burgasser, A., Theissen, C., Schmidt, S., Stassun, K., Teske, J. (2016 October). Identification of H-band Absorption Lines in High Resolution APOGEE Spectra of the Lowest Mass Stars. Poster presentation at the national SACNAS Conference, Long Beach CA.

Talks

Physical Parameters for 10,000+ M dwarfs in the APOGEE Survey — 2019
Sloan Digital Sky Survey Collaboration Meeting — *Ensenada, Mexico*

Data Driven Models for APOGEE M dwarfs — 2017
Stars Meeting & Milky Way Meeting, MPIA — *Heidelberg, Germany*

Identification of H-band Absorption Lines in APOGEE Spectra of the Lowest Mass Stars 2016
Summer Undergraduate Research Conference, UCSD *La Jolla, CA*

Telescope Time Awarded

Co-I : **IRTF iShell** - 6 nights (PI : Adam Burgasser) 2018A - 2019B
Training the Cannon : Calibrating APOGEE Observations of Ultracool Dwarfs

Co-I : **APOGEE 2.5-meter** - Fibers for ancillary survey (PI : Adam Burgasser) 2017 - 2018
APOGEE-2 Survey of the Lowest-Mass Stars and Brown Dwarfs : Composition, Chemistry and Companions

Teaching

Teaching Assistant :
ASTR 102 : Introduction to Astronomy Fall 2020

Service

Apache Point Observatory - Telescope Allocation Committee 2020

Professional Development

online.tess.science - *Online workshop* Sep 2020
TESS Ninja 3 : Expanding the Science of TESS - *Sydney, Australia* Feb 2020
ZTF Collaboration Meeting - *UW Seattle, WA* Sept 2019
Caltech FUTURE of Physics Workshop - *Pasadena, CA* Nov 2018
M33 HST Survey Meeting - *Ringberg Castle, Tegernsee, Germany* Jul 2018
Conference for Undergraduate Women in Physics - *Cal Poly Pomona, CA* Jan 2018
Gaia Sprint - *Internationales Wissenschaftsforum Heidelberg, Germany* Jul 2017
Conference for Undergraduate Women in Physics - *UC Los Angeles, CA* Jan 2017

Engineering Experience

UCSD Human Powered Submarine Team Sept 2015 - Mar 2017
Propulsion and Hull Design Teams *La Jolla, CA*
Role : designed submarine drive train and hull profile ; perfomed fluid dynamics simulations

Software Contributions

Burgasser, A. J., Splat Development Team (incl. **Birky, J.**), The SpeX Prism Library Analysis Toolkit (SPLAT): A Data Curation Model, Bull. Astr. Soc. India, 00, 1-6, 2017 (arXiv :1707.00062)

Skills

Programming	*Proficient :* Python, C++, Mathematica *Familiar :* Matlab, Processing
Software	*Proficient :* LaTeX, Unix, Git *Familiar :* SQL, Solidworks, Illustrator
Languages	English *(fluent)*, German *(limited working proficiency)*

Organizations

American Astronomical Society (AAS) Member 2016 - Present
Society for the Advancement of Chicanos and Native Americans in Science 2016 - Present
Sloan Digital Sky Survey (SDSS) - Faculty and Student Team (FAST) Member 2016 - 2019

References

Prof. James Davenport (UW) jrad@uw.edu

Prof. David Hogg (NYU/MPIA/Flatiron) david.hogg@nyu.edu

Prof. Adam Burgasser (UCSD) aburgasser@ucsd.edu

Dr. Christopher Theissen (UCSD) ctheissen@ucsd.edu