

Aurora Kesseli

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RESEARCH POSITIONS	Leiden University , Postdoctoral Research Fellow Advisor: Prof. Ignas Snellen	Sep 2019 – Present
	Boston University , Graduate Research Fellow Advisor: Prof. Philip Muirhead	Sep 2014 – Aug 2019
	IPAC , Visiting Graduate Student Fellow Advisor: Dr. J. Davy Kirkpatrick	Jan 2018 – Aug 2018
	Colby College , Research Assistant Advisor: Prof. Elizabeth McGrath	Aug 2012 – May 2013
	University of Wisconsin, Madison , NSF funded undergrad research student Advisor: Dr. Barbara Whitney	May 2011 – Aug 2012
RESEARCH INTERESTS	I am interested in determining fundamental parameters, such as metallicity, magnetism, and sizes, of giant exoplanets, brown dwarfs, and low-mass stars. I have used moderate- and high-resolution spectroscopy to conduct this research, and am primarily an observational astronomer.	
EDUCATION	Boston University PhD in Astronomy Dissertation: <i>The Effects of Metallicity and Magnetism on the Radii of M-dwarf Stars</i> Advisor: Prof. Philip Muirhead	Aug 2019
	Boston University M.A. in Astronomy Advisor: Prof. Andrew West	Aug 2016
	Colby College B.A. in Physics Senior Thesis: <i>Massive Quiescent Disk Galaxies in the CANDELS Survey</i> Advisor: Prof. Elizabeth McGrath	May 2013
HONORS & AWARDS	IPAC Visiting Graduate Student Fellowship, <i>IPAC</i>	Jan 2018 – Aug 2018
	Senior Prize in Physics, <i>Colby College</i>	May 2013
	Outstanding Teaching Assistant Award, <i>Colby College</i>	May 2013
	Inducted into Sigma Phi Sigma, <i>Colby College</i>	
OBSERVATIONAL EXPERIENCE	Keck PI of a rotational broadening survey of M dwarf stars using the upgraded NIRSPEC instrument, a high resolution (R=25,000) near-infrared spectrograph	1 Night
	Discovery Channel Telescope PI of above-mentioned project using the Immersion Grating Infrared Spectrograph (IGRINS; R=45,000)	18 Nights
	NASA's Infrared Telescope Facility (IRTF) PI of a metallicity study using iSHELL, which is also a high resolution (R=75,000) near-infrared spectrograph	8 Nights
	Hale Telescope at Palomar Observed reduced and analyzed DoubleSpec medium resolution (R=2000) optical spectra	1 Night

COMPUTATIONAL LANGUAGES & SKILLS Languages: Python | IDL | SQL | \LaTeX | IRAF

Lead a group of graduate students to update and improve an automatic and visual spectral typing facility, written in python and maintained on GitHub: <https://github.com/BU-hammerTeam/PyHammer>

Machine Learning: Clustering (e.g., K-means, DBSCAN) | Dimensionality Reduction | Supervised Classification

Completed a semester long project on applications of clustering algorithms using both *Kepler* and simulated *TESS* data

Python Tools: Numpy | Matplotlib | scikit-learn | SciPy | Pandas

INVITED TALKS & PRESENTATIONS	Colloquium: American Museum of Natural History, New York, NY <i>The Effects of Metallicity and Magnetism on the Radii of M-dwarf Stars</i>	Mar 2019
	AAS Meeting #223: Seattle, WA <i>M Subdwarfs May Be Smaller Than You Would Think</i>	Jan 2019
	Exoplanet Pizza Lunch: CfA, Cambridge, MA <i>The Radii of M Subdwarfs and Their Role in WFIRST's Exoplanet Microlensing Survey</i>	Nov 2018
	The Boston Area Exoplanet Science Meeting: MIT, Cambridge, MA <i>The Radii of M Subdwarfs and Their Role in WFIRST's Exoplanet Microlensing Survey</i>	Sep 2018
	Cool Stars 20 Splinter "Know Thy Starspot, Know Thy Star": Boston University, Boston, MA <i>Do Enhanced Magnetic Fields and Magnetic Starspots Inflate the Radii of Low-mass Stars?</i>	Jul 2018
	The Greater IPAC Science Symposium: IPAC, Pasadena, CA <i>Old and Cold! Super Results About Subdwarfs</i>	Jun 2018
	Exoplanet Pizza Lunch: Center for Astrophysics, Cambridge, MA <i>New Methods to Characterize Low-Mass Stars (Featuring the PyHammer Spectral Typing Suite)</i>	Apr 2017
	TEDx: Colby College, Waterville, ME <i>How to Find a Habitable Planet</i>	Apr 2013

PUBLICATIONS **FIRST AUTHOR, REFEREED**

- [1] [A. Kesseli](#), D. Kirkpatrick, S. Fajardo-Acosta, et al. "Radii of 85 M Subdwarfs and Updated Radius Relations for Low-Metallicity M Dwarf Stars." 2019, *AJ*, 157, 63
- [2] [A. Kesseli](#), P. Muirhead, A. Mann, G. Mace "Magnetic Inflation and Stellar Mass. II. On the Radii of Single, Rapidly Rotating, Fully Convective M-Dwarf Stars." 2018, *AJ*, 155, 225
- [3] [A. Kesseli](#), A. West, M. Veyette, et al. "An Empirical Template Library of Stellar Spectra for a Wide Range of Spectral Classes, Luminosity Classes, and Metallicities Using SDSS BOSS Spectra." 2017, *ApJS*, 230, 16
- [4] [A. Kesseli](#), M. Petkova, K. Wood, et al. "A Model for (Quasi-)Periodic Multiwavelength Photometric Variability in Young Stellar Objects." 2016, *ApJ*, 828, 42

CO-AUTHOR, REFEREED

- [1] R. Lopez-Valdivia, G.N. Mace, K.R. Sokal, et al., including [A. Kesseli](#). "Effective Temperatures of Low-Mass Stars from High-Resolution H-band Spectroscopy." 2019, *arXiv:1905.05076*
- [2] E.J. McGrath, A. van der Wel, H. Ferguson, S. Faber, [A. Kesseli](#), et al. "CANDELS: The Prevalence of Massive Quiescent Disks in the Early Universe." 2018, *Submitted to ApJ*

FIRST AUTHOR, POSTERS

- [1] [A. Kesseli](#), J. D. Kirkpatrick, S. Fajardo-Acosta, M. Cushing "M Subdwarfs May Be Smaller Than You Would Think," in *Cool Stars #20*, Boston, MA, USA. poster #159, Aug 2018.
- [2] [A. Kesseli](#), A. A. West, M. Veyette, B. Harrison, D. Feldman, J. J. Bochanski, "PyHammer: An Automatic and Visual Suite for Spectral Typing Stars," in *AAS Meeting #229*, Grapevine, Texas, USA. poster# 240.35, Jan 2017.
- [3] [A. Kesseli](#), and A.A. West "Probing Variations in the IMF as a Function of Galactic Properties," in *The Stellar IMF at Low Masses: A Mini-Workshop*, Space Telescope Science Institute, Baltimore MD, Jun 2015.

- [4] A. Kesseli and E.M. McGrath, “Massive Quiescent Disk Galaxies in the CANDELS Survey,” in *AAS Meeting #223*, Washington D.C, USA, poster #145.15 Jan 2014.
- [5] A. Kesseli , B. A. Whitney, K. Wood, P. Plavchan, S. Terebey , J. Stauffer, “Explaining Multi-Wavelength Photometric Variability in Young Stellar Objects,” in *AAS Meeting #221*, Long Beach, California, poster #256.10 Jan 2013.

CO-AUTHOR, POSTERS

- [1] Muirhead, P.S., Croll, B., Dalba, P.A., Veyette, M., Han, E., Kesseli, A., Healy, B. “The Puzzling Atmospheres of Low-mass Stars, Brown Dwarfs and Exoplanets Revealed by the Discovery Channel Telescope,” in *AAS #229*, Grapevine, Texas, USA. poster #126.07, Jan 2017.

OUTREACH

Girls Science Club, Club Leader Sep 2014 – Aug 2019

- Girls Science Club (GSC) is a weekly after-school program, where elementary school aged girls from low income neighborhoods in Boston participate in fun, hands on science projects with graduate women from Boston University
- Featured in an article from the BU journal about the positive role of the club on our students: <http://www.bu.edu/today/2017/science-club-for-girls/>
- GSC won the award for the best volunteer group of the 2015-2016 academic year out of over 20 groups that volunteer

Women As Leaders in Astronomy (WALA), Group Organizer Sep 2016 – Aug 2019

- Plan activities and discussions each month for issues that specifically effect women in Astronomy and science fields in general (such as implicit bias, microaggression, etc.)

TEACHING EXPERIENCE

Boston University, Teaching Fellow

Alien Worlds Summer 2015, Spring 2017

- Teaching Assistant for online MOOC (Massively Open Online Courses) class, attended by over 500 students
- Lead TA for the undergraduate course with over 150 students enrolled

The Solar System Spring 2015, Fall 2016

- Led over 50 undergraduate students through both day and night labs, and received consistently above average reviews from students

Colby College, Teaching Assistant

Introduction to Astrophysics 2011 – 2013

- Aided in both the computational lab portion and the night lab (telescope portion) of the undergraduate course for physics majors and non-majors
- Won the award for most valuable teaching assistant at Colby College