

Jared Alan Keown

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Education

Ph.D. Astronomy and Astrophysics, University of Victoria, Victoria, BC, Canada, Sept 2014 - present

B.S. Physics, University of Louisville, Louisville, KY, USA, Aug 2010 - May 2014

Summa Cum Laude, GPA: 3.926/4.000

Research Experience

PhD Thesis, University of Victoria, Victoria, BC, Canada, Sept 2014 - present

Topic: *Virial Stability of Hierarchical Dense Gas Structures in Low- and High-Mass Star-Forming Regions*

Advisors: Dr. James Di Francesco and Dr. Kim Venn

Duties: Apply structure-finding algorithms to multi-dimensional data cubes; model molecular line emission to derive kinematics and temperatures; develop software pipelines for data cleaning, analysis, and visualization; curate catalogs of dense core candidates and parameter maps; observed ~ 100 hours on the Green Bank Telescope as a member of the *Green Bank Ammonia Survey* and *KFPA Examinations of Young O-star Natal Environments* large programs

Senior Honors Thesis, University of Louisville, Louisville, KY, USA, Aug 2013 - May 2014

Topic: *Infall as a Function of Position and Molecular Tracer in Dense Cores*

Advisors: Dr. Scott Schnee and Dr. Gerard Williger

Duties: Analyzed the kinematics and chemistry of collapsing star-forming cloud cores; transcribed results in thesis document; completed oral defense of project

NSF Summer Fellowship, National Radio Astronomy Observatory, Charlottesville, VA, USA, Summer 2013

Topic: *Infall as a Function of Position and Molecular Tracer in Prestellar Cores*

Advisor: Dr. Scott Schnee

Duties: Developed Python program for fitting radiative transfer models to over 400 asymmetric emission spectra; documented results in project report submitted to National Science Foundation

NSF Summer Fellowship, Bucknell University, Lewisburg, PA, USA, Summer 2012

Topic: *The Spatial Relationship Between Forming Stars and Their Dense Cores*

Advisor: Dr. Ned Ladd

Duties: Extracted, cleaned, and visualized data from astronomical databases

Industry Experience

Data Scientist Intern, Schneider Electric, Victoria, BC, Canada, May 2017 - present

Duties: Train, validate, and implement machine learning models of IT Helpdesk user habits; extract usage statistics from user log files using efficient text-parsing methods; develop and maintain relational database of compiled data sources; convey results through interactive dashboards and daily reports sent to management

Computer Skills

Proficient: Python, MySQL, Linux & Mac operating systems, SAOImage DS9, LaTeX

Familiar: Bash shell scripting, C++, Matlab, HTML/CSS, Gildas CLASS, IRAF

Selected Peer-Reviewed Journal Articles

Teimoorinia, H. and **Keown, J.** “*The discrimination between star-forming and AGN galaxies in the absence of H α and [NII]: A machine learning approach*”, submitted, MNRAS

Keown, J., Di Francesco, J., Kirk, H., Friesen, R., Pineda, J., et al. “*The Green Bank Ammonia Survey: Observations of Hierarchical Dense Gas Structures in Cepheus-L1251*”, 2017, ApJ, 833, 97

Keown, J., Schnee, S., Bourke, T., Di Francesco, J., Friesen, R., et al. “*Infall/Expansion Velocities in the Low-Mass Dense Cores L492, L694-2, and L1521F: Dependence on Position and Molecular Tracer*”, 2016, ApJ, 833, 97

Kern, N. S., **Keown, J.**, Tobin, J. J., Mead, A., & Gutermuth, R. A. “*Radio Properties of Young Stellar Objects in the Core of the Serpens South Infrared Dark Cloud*”, 2016, AJ, 151, 42

Yong, D., Casagrande, L., Venn, K. A., Chene, A., **Keown, J.**, et al. “*GRACES observations of young $[\alpha/\text{Fe}]$ -rich stars*”, 2016, MNRAS, 459, 487

Selected Talks and Posters

“*KEYSTONE: KFPA Examinations of Young O-star Natal Environments*” Poster. Transformative Science for the Next Decade with the Green Bank Observatory meeting, Green Bank, West Virginia, USA, Oct 2017.

“*The Green Bank Ammonia Survey*” Talk. Star Formation 2016 Conference, Exeter, Devon, UK, Aug 2016.

“*A Tale of Two Clouds: Cepheus Versus Aquila*” Talk. Canadian Astronomical Society Annual General Meeting, Winnipeg, MB, Canada, May 2016.

“*Infall as a Function of Position and Molecular Tracer in Prestellar and Protostellar Cores*” Poster. Canadian Astronomical Society Annual General Meeting, Hamilton, ON, Canada, May 2015.

Teaching Experience

Physics and Astronomy Tutor, Resource Centre for Students with a Disability, UVic, Aug 2015 - May 2017
Duties: Assist student learning through weekly one-on-one appointments; promote problem-solving strategies that improve student performance in multiple disciplines

Teaching Assistant, UVic & UofL, Intro Physics and Astro Lab Courses, Fall 2013 - Fall 2016 (six semesters)
Duties: Assemble laboratory equipment prior to class; instruct pre-lab lectures and experiment overviews; assess student progress by grading coursework

Honors & Awards

Best Presentation, Annual award for top presenter at UVic Astro Dept. “Paper Session”, 2016 and 2017

Best Grad Student Poster, Northwest Astronomy Meeting, Western Washington University, 2016

Outstanding Graduate Entrance Award, UVic Dept. of Physics & Astro, 2014 - 2015 (\$15,000)

Bennett Memorial Scholarship, Top graduating student in Dept. of Physics & Astro at UofL, 2014 (\$500)

William Marshall Bullitt Award, Top undergraduate astronomy student at UofL, 2012 (\$3,000)

Henry Vogt Trustee’s Scholarship, Awarded to top incoming undergraduates at UofL, 2010 - 2014 (\$48,959)

Service and Development

Sports Coordinator, UVic Physics and Astronomy Graduate Student Association, Fall 2017 - present

Telescope Tour Leader, UVic Astronomy Observatory, Victoria, BC, February & July 2016

Computer Programming Mentor, Ladies Learning Code Workshops, Victoria, BC, 2015-2017

ALMA Summer School, Dominion Radio Astrophysical Observatory, Penticton, BC, Summer 2015

ISM and Star Formation Summer School, University of Heidelberg, Germany, Summer 2015