

SAMUEL M. FACTOR

Curriculum Vitae

Univ. of Texas at Austin Dept. of Astronomy, 2515 Speedway, Stop C1400, Austin, TX 78712
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EDUCATION

The University of Texas at Austin, Austin, TX
Ph.D., Astronomy (Advisor: Dr. Adam Kraus) (expected) 2020
Wesleyan University, Middletown, CT
M.A., Astronomy (Advisor: Dr. A. Meredith Hughes) 2015
Thesis Title: *ALMA Observations of Molecular Gas Emission from a Protoplanetary Disk in the Orion Nebula*
B.A., Physics and Computer Science, Φ BK, GPA: 3.93 2014

RESEARCH EXPERIENCE

Graduate Student Researcher Advisor: Dr. Adam Kraus 2015–Present
Department of Astronomy, The University of Texas at Austin, Austin, TX

- Applying an interferometric analysis technique to archival HST imaging to search for companions to nearby stars below the diffraction limit.
- Analysis utilized the Lonestar5 cluster at the Texas Advanced Computing Center (TACC).

Graduate Student Researcher Advisor: Dr. A. Meredith Hughes 2014–2015
Astronomy Department, Wesleyan University, Middletown, CT

- Modeled the temperature and density structure of a protoplanetary disk in the Orion Nebula Cluster using Atacama Large Millimeter/submillimeter Array observations of molecular gas.
- Analysis utilized Wesleyan University's High Performance Compute Cluster.

Undergraduate Research Assistant Advisor: Dr. Fred Ellis 2012–2014
Physics Department, Wesleyan University, Middletown, CT

- Built and tested the scattering properties of electronic circuits modeling optical systems.
- Research topics include: PT-symmetric systems, wave transport, asymmetric transport, nonlinear systems, unidirectional lasing.

TEACHING EXPERIENCE

Institute for Scientist & Engineer Educators Professional Development Program 2018
Intensive teaching workshop focusing on inquiry, equity & inclusion, and assessment.
Teaching Assistant AST 301: Introduction to Astronomy Fall 2015
Department of Astronomy, The University of Texas at Austin, Austin, TX
Teaching Assistant ASTR 107: The Universe, ASTR 211: Observational Astronomy 2014–2015
Astronomy Department, Wesleyan University, Middletown, CT
Course Assistant COMP 112: Intro. to Programming, PHYS 215: Special Relativity 2012, 2013
Computer Science and Physics Departments, Wesleyan University, Middletown, CT

HONORS & AWARDS

Board of Visitors Graduate Student Second Year Research Defense Award , UT Austin	2017
Chambliss Astronomy Achievement Award , Honorable Mention, AAS	Winter, 2016
Frank N. Edmonds, Jr. Memorial Fellowship in Astronomy , UT Austin	2016
ΦBK , Wesleyan University	Spring, 2014
Barry M. Goldwater Scholarship , Honorable Mention	2013
Karl Van Dyke Prize , Wesleyan University Physics Dept.	2013
Dean's List , Wesleyan University	2010 - 2014

FUNDING

<i>University Graduate Continuing Fellowship</i> The University of Texas at Austin Graduate School, 2018-2019	\$40,000
<i>Kernel-Phase Interferometry for Super-resolution Detection of Faint Companions</i> PI of Cycle 24 Hubble Space Telescope Archival Research Grant 14561, 2016	\$141,430
<i>John W. Cox Graduate Excellence Fellowship</i> University of Texas at Austin Dept. of Astronomy recruiting Fellowship, 2015	\$18,000
<i>Travel to: 225th Meeting of the American Astronomical Society</i> PI of Student Travel Grant, CT Space Grant College Consortium, 2015	\$1,000

PUBLICATIONS

- S. Factor**, A. M. Hughes, K. Flaherty, R. K. Mann, J. Di Francesco, J. P. Williams, L. Ricci, B. C. Matthews, J. Bally, D. Johnstone, 2017, *The Astronomical Journal*, 153, 233, "[ALMA Observations of Asymmetric Molecular Gas Emission from a Protoplanetary Disk in the Orion Nebula](#)"
- J. M. Lee, **S. Factor**, Z. Lin, I. Vitebskiy, F. Ellis, T. Kottos, "[Reconfigurable directional lasing modes in cavities with generalized \$\mathcal{PT}\$ Symmetry](#)," *Phys. Rev. Lett.*, vol 112, p. 253902, Jun 2014
- M. Chitsazi, **S. Factor**, J. Schindler, H. Ramezani, F. M. Ellis and T. Kottos, "[Experimental observation of lasing shutdown via asymmetric gain](#)," *Phys. Rev. A*, vol. 89, p. 043842, Apr 2014
- N. Bender, **S. Factor**, J. D. Bodyfelt, H. Ramezani, D. N. Christodulides, F. M. Ellis, and T. Kottos, "[Observation of asymmetric transport in structures with active nonlinearities](#)," *Phys. Rev. Lett.*, vol. 110, p. 234101, June 2013

PRESENTATIONS

- Kernel-Phase Interferometry for Super-Resolution Detection of Faint Companions ([poster](#)), *Star and Planet Formation in the Southwest 2*, March 2018, Oracle, AZ
- Kernel-Phase Interferometry for Super-Resolution Detection of Faint Companions ([poster number 118.03](#)), *230th Meeting of the AAS*, June 2017, Austin, TX
- Kernel-Phase Interferometry for Super-Resolution Detection of Faint Companions ([poster number 146.25](#)), *229th Meeting of the AAS*, January 2017, Grapevine, TX (Chambliss Honorable Mention)
- Git is great! ([slides](#)), *UT Austin Graduate Student Postdoc Seminar*, November 2016, Austin, TX
- Kernel-Phase Interferometry for Super-Resolution Detection of Faint Companions ([poster](#)), *Sagan Exoplanet Summer Workshop*, July 2016, Pasadena, CA
- ALMA Observations of Molecular Gas Emission from a Protoplanetary Disk in the Orion Nebula Cluster ([poster](#)), *Frank N. Bash Symposium*, October 2015, Austin, TX
- Characterizing a Young Protoplanetary Disk in the Orion Nebula Cluster ([poster number 349.06](#)), *225th Meeting of the American Astronomical Society*, January 2015, Seattle, WA

OUTREACH AND SERVICE

Astrobites , Author astrobites.org Write brief paper summaries accessible to undergraduate level students.	2018–Present
Astronomy Graduate Student Executive Committee , UT Austin, Computer Officer	2017–2019
Astronomy on Tap Austin TX , Organizing Committee and Speaker Present free, accessible astronomy talks in a bar to ~ 300 people monthly.	2016–Present
UT Austin Girl Day Festival , Volunteer Facilitated hands on astronomy activities for over 8,000 middle school girls and their families.	2017, 2018
TAURUS Summer Program , McDonald Trip Committee Organized and lead the program’s observing trip to McDonald Observatory.	2017
Ask an Astronomer , Author Answered questions from the public through askanastronomer.org	2015–2016
Public Observing , Van Vleck Observatory, Wesleyan University, Middletown, CT Helped host weekly public observing and kids nights.	2014–2015

OBSERVING EXPERIENCE

Harlan J. Smith, GCMS (VIRUS-P), McDonald Observatory (P.I. TAURUS)	3 nights
Harlan J. Smith, Tull Coude Spectrograph (TS23), McDonald Observatory (P.I. A. Rizzuto)	9 nights
Keck II, NIRC2 LGS, Mauna Kea Observatory, (P.I. A. Mann)	1 night

MEMBERSHIPS

Junior Member, American Astronomical Society	2015–Present
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PROGRAMMING LANGUAGES & SOFTWARE

Python, Git, L^AT_EX, MIRIAD, CASA, Mathematica, C, Ruby, Rails, Java, Visual Basic, SML, Agda

EXTRACURRICULAR ACTIVITIES

Volunteer Coach , Austin Rowing Club	2017–Present
Certified Open Water Diver , PADI (24 dives)	2013–Present
Volunteer Assistant Coach , Wesleyan University Men’s Varsity Rowing	Fall, 2015
Wesleyan University Men’s Varsity Rowing	2010–2014
NESCAC All Sportsmanship Team, New England Small College Athletic Conference	2014
Stewards’ All Academic Team, Eastern College Athletic Conference	2012–2014
NESCAC All Academic Team, New England Small College Athletic Conference	2012–2014
Head of the Charles Men’s Collegiate 8+, 5th place	2013
New England Rowing Championships Men’s JV 8+, 3rd place	2013, 2014