Dominick Rowan

Haverford College

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EDUCATION

2016 – Present: Haverford College, Bachelor of Science: Physics & Astronomy

Expected Graduation: May 2020

Total GPA: 3.87

Physics & Astro GPA: 3.90

General GRE: Verbal: 161, Quantitative: 167, Writing: 5.0

Fall 2018: Study abroad at University of Edinburgh

2012 – 2016: Byram Hills High School, Armonk, NY

RESEARCH EXPERIENCE

Haverford College, Spring 2019 – Present**:**

Produced and analyzed the pulse profiles and emission spectra of three millisecond pulsars observed by *NICER* with Python and Bash. Used the results to describe the magnetospheric emission geometry of each pulsar. Developed pipeline for data processing and calibration. Work presented at IPTA 2019. Research advisor: Prof. Andrea Lommen, Haverford College.

REU: University of Hawaii, Summer 2018**:**

Developed ranking algorithm for the detection of white dwarf variability in *GALEX* observations in Python. Used method to detect 63 variable WDs and calculate occurrence rate of transiting planetesimal/asteroids. Observed spectra of two WDs with UH 88inch telescope. Work presented at AAS 233. Research advisors: Prof. Benjamin Shappee & Michael Tucker, University of Hawaii; Prof. JJ Hermes, Boston University.

Haverford College, Spring 2018**:**

Analyzed first year of *NICER* X-ray observations of two millisecond pulsars for evidence of background emission from Soyuz rockets using Python and Bash. Implemented calibration procedures to filter and process observations. Research advisor: Prof. Andrea Lommen, Haverford College.

Haverford College, Summer 2017**:**

Studied the magnetic field of high velocity clouds using Compact Array data by observing the polarization of light from background galaxies using IDL and Python. Work presented at KNAC 2017 Symposium. Research advisor: Prof. Alex Hill, Haverford College.

Authentic Science Research, Byram Hills High School (UT Austin)**:** 2014-2016

Developed a detection algorithm to detect Jupiter-like exoplanets in R. Implemented the algorithm with Keck radial velocity data to compute the frequency of Jupiter-like exoplanets. Constrained the parameters of a previously undetected exoplanet, HD32963b. Research advisor: Dr. Stefano Meschiari, University of Texas at Austin.

WORK EXPERIENCE

Thomas Lucas Productions – 2016

Worked as an assistant writer and editor for SpaceRip, a streaming-based production company, during eight-week internship. Wrote and edited a documentary on Solar System formation theory, *The Improbable Rise of Planet Earth*. Wrote several astronomy features for SpaceRip blog on current events.

Haverford College Public Observing – January 2019 – Present

Working as a leader of the Haverford public observing program this semester. Organize and run 3-4 observatory open-house events per semester for students and the local community and private events for small groups. Lead observations with the 12" and 16" telescopes, run/ science demonstrations, and give astronomy presentations.

PUBLICATIONS

Rowan, D., et al. (2019). *A NICER View of Spectral and Profile Evolution for Three X-ray Emitting Millisecond Pulsars*. Submitted, Astrophysical Journal.

Rowan, D., et al. (2019). *Detections and Constraints on White Dwarf Variability from Time-Series GALEX Observations*. MNRAS (https://ui.adsabs.harvard.edu/abs/2019MNRAS.486.4574R/abstract)

Tucker, M.A., et al. (2018) *ASASSN-18ey: The Rise of a New Black Hole X-ray Binary*. The Astrophysical Journal Letters. (https://ui.adsabs.harvard.edu/abs/2018ApJ...867L...9T/abstract)

Rowan, D., et al. (2015). *The Lick-Carnegie Exoplanet Survey: HD32963b – A New Jupiter-Analog Orbiting a Sun-like Star*. Astrophysical Journal. (https://ui.adsabs.harvard.edu/abs/2016ApJ...817..104R/abstract)

Classification Reports:

Tucker, M.A., Rowan, D.M., & Shappee, B.J. (2018). SCAT Transient Classification Report for 2018-07-22. Transient Name Server Classification Report. (https://ui.adsabs.harvard.edu/abs/2018TNSCR1016....1T/abstract)

Tucker, M.A., Rowan, D.M., & Shappee, B.J. (2018). SCAT Transient Classification Report for 2018-06-13. Transient Name Server Classification Report. (https://ui.adsabs.harvard.edu/abs/2018TNSCR.814....1T/abstract)

Tucker, M.A., Rowan, D.M., & Shappee, B.J. (2018). SCAT Transient Classification Report for 2018-06-12. Transient Name Server Classification Report. (https://ui.adsabs.harvard.edu/abs/2018TNSCR.805....1T/abstract)

Tucker, M.A., et al. (2018). SCAT Classification of 4 Optical Transients. The Astronomer's Telegram. (https://ui.adsabs.harvard.edu/abs/2018ATel11711....1T/abstract)

PRESENTATIONS

Poster presentation, American Astronomical Society, 235, Jan 2020. Honolulu, Hawaii. *A NICER View of Spectral and Profile Evolution for Three X-ray Emitting Millisecond Pulsars*

Poster presentation, Haverford KINSC Summer Research Symposium, September 2019. *Phase-Resolved Spectra of Millisecond Pulsars with NICER X-ray Observations*

Poster presentation, International Pulsar Timing Array, June 2019. Pune, India. *Phase-Resolved Spectra of Millisecond Pulsars with NICER X-ray Observations*

Poster presentation, American Astronomical Society, 234, Jan 2019. *Pulsating and Eclipsing White Dwarfs Discovered from Time-Series GALEX Observations*

Oral Presentation, University of Hawaii Institute for Astronomy Summer Research Symposium, August 2018. *White Dwarf Variability in GALEX Observations*.

Oral Presentation, Keck Northeast Astronomy Consortium, October 2017. *Mapping Faraday Rotation Measures onto High Velocity Cloud H288*

OBSERVING EXPERIENCE

Public Observing facilities: Schmidt-Cassegrain 8", 12", and 16" telescopes

Observational Astronomy (ASTR341): Green Bank 20m radio telescope, 40ft radio telescope

University of Hawaii IfA REU: UH 88inch telescope (4 nights)

TECHNICAL SKILLS

Programming Languages: Python, C, R, IDL, Bash
Other: Mathematica, Adobe Illustrator, Fusion 360