Zeeve **Rogoszinski**

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Education

University of Maryland — *College Park, MD*

Ph.D. in Astronomy, Advisor: Douglas Hamilton, Thesis: "The Tilts and Spins of Planets and Moons" — *Aug 2020 (expected)*

M.S. in Astronomy, Advisor: Douglas Hamilton, Thesis: "Tilting Uranus Without a Collision" — *Dec 2016*

Vassar College — *Poughkeepsie, NY*

B.A. in Astronomy & Physics, Advisor: Debra Elmegreen, Thesis: "Structure and Activity in Hubble Deep Field Elliptical Galaxies" — *Jun 2014*

Skills

Analysis Skills: Data Mining, Data Visualization, High Performance Computing, Multiprocessing, Statistics and Probability

Programming Languages : Python, C, LaTeX, Mathematica, shell scripting, HTML/CSS

Tools & Software: HDF5, Numpy, Matplotlib, Pandas, Scikit-learn, SciPy, Seaborn Git, Jupyter Notebook, Microsoft Office, Slurm, Unix/Linux

Spoken Languages: English (native), Hebrew (advanced)

Research Experience

Doctoral Researcher and PhD Candidate — *Sept 2014 - present*

University of Maryland, College Park, MD

- Explored additional explanations to the origins of planetary spin-states, with a focus on how Uranus was tilted on its side.
- Developed C based simulations to model the evolution of tilts and spins of Uranus and Neptune via collisions and spin-orbit resonances.
- Executed the DISCO moving-mesh magnetohydrodynamics software to model the spin evolution of gas giants via gas accretion.
- Developed Python post-processing tools for data aggregation (up to 1-10 TB), and visualization of these simulations.
- Performed a rudementary statistical comparison of probable explanations for Uranus's and Neptune's spin-states.
- Published a novel explanation for Uranus's and Neptune's tilts that both reduces the mass and number of subsequent impacts, and preserves the planets' spin periods.
- Presented my findings at multiple conferences and meetings, and my work has been discussed in news articles such as Forbes and AAS Nova.
- Repurposed an N-body simulator using a Python wrapper to calculate the evolution of satellite orbits after 100s of collisions.

Summer Researcher — *Jun 2014 - Aug 2014*

NASA Goddard Space Flight Center, Greenbelt, MD

- Interned with John Hewitt to study cosmic ray origins in supernova remnants.
- Developed a Python image processing and analysis script to extract the total flux from three supernova remnants using Planck and WMAP data.
- Compared the results to possible particle acceleration models to determine the process likely responsible for producing cosmic rays.
- Presented a poster of my findings at the 225th AAS meeting.

Senior Thesis Research — *Sept 2013 - May 2014*

Vassar College, Poughkeepsie, NY

- Worked with Debra Elmegreen on an independent study of galaxy evolution using Hubble Deep Field optical images.
- Analyzed the sizes and intensities of elliptical galaxies using IRAF to find correlations between structure and star formation rates.

Summer Research Fellow — *Jun 2013 - Aug 2013*

Williams College, Williamstown, MA

- Worked with Jay Pasachoff as part of the Keck Northeast Astronomy Consortium to study the black-drop effect during the 2012 transit of Venus.
- Processed and analyzed raw images using ImageJ and DS9 to measure the brightness of the planet during ingress.
- Presented a poster of my findings at the 223rd AAS meeting.

Teaching and Leadership Experience

Astronomy 101 TA *Sept 2014 - May 2016, Fall 2019*

University of Maryland, College Park, MD

- Taught two lab sessions and one discussion section for the Astronomy 101 course over five semesters.
- Prepared lesson plans to compliment the week's topic for the discussion sections, including group activities and interactive demonstrations.

GRAD-MAP Member *Jan 2015 - Jan 2018*

University of Maryland, College Park, MD

- Volunteered with the GRAD-MAP program by assisting with outreach, and helping to plan the Winter Workshop.
- GRAD-MAP is a diversity initiative and graduate student led organization by the Astronomy and Physics departments dedicated to sustaining ties between UMD and other minority serving institutions.

Executive Secretary *2017, 2018*

NASA

- A secretary position at NASA peer review panels for annual proposals. They are reserved for early scientists to observe and learn from the proposal decision process.

Planetarium Presenter *Jun 2013 - Aug 2013*

Williams College Planetarium, Williamstown, MA

- Presented and operated the college's planetarium show for the public once a week.

Observatory Assistant *Sept 2010 - May 2012*

Vassar College, Poughkeepsie, NY

- Maintained and operated the school's telescope multiple nights a week for student and professional research projects.

Fellowships & Awards

2020	**Ann G. Wylie Dissertation Fellowship**,	*U Maryland*
2016 - 2019	**NASA Earth and Space Science Fellowship**, 28 out of 180 selected	*NASA*
2016	**Hartmann Student Travel Grant**,	*AAS*
2014	**Departmental Honors in Astronomy**,	*Vassar College*
2014	**Departmental Honors in Physics**,	*Vassar College*
2014	**General Honors**,	*Vassar College*
2014	**Sigma Xi**,	
2013	**Ethel Hickox Pollard Memorial Physics Award**,	*Vassar College*
2013	**Janet Murray '31 Memorial Scholarship**,	*Vassar College*

Publications

The Brute-Force Search for Planet Nine

Lawrence, S., Rogoszinski, Z., 2020, arXiv:2004.14980

Tilting Uranus: Collisions vs. Spin-Orbit Resonance

Rogoszinski, Z., Hamilton D. P., 2020, under review, arXiv:2004.14913

Tilting Ice Giants with a Spin-Orbit Resonance

Rogoszinski, Z., Hamilton D. P., 2020, ApJ. arXiv:1908.10969

Selected Posters and Presentations (4 out of 10)

Can The Spin Rates of Irregular Satellites Provide Constraints To Their Formation Histories? *EPSC-DPS Joint Meeting*

Rogoszinski, Z., Hamilton D. P. *Sept 2019*

Tilting Ice Giants with Circumplanetary Disks *Division of Dynamical Astronomy*

Rogoszinski, Z., Hamilton D. P. *Jun 2019*

Continuing the investigation to tilting Uranus with a secular spin-orbit resonance *Division of Planetary Science*

Rogoszinski, Z., Hamilton D. P. *Oct 2017*

Constraining Cosmic Ray Origins Through Spectral Radio Breaks In Supernova Remnants *American Astronomical Society*

Rogoszinski, Z., Hewitt, J. W. *Jan 2015*