

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

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, L^AT_EX, 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 large data set aggregation (up to 10 TB), and visualization of these simulations.
- Performed a rudimentary 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 both in the US and abroad.
- 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,	<i>U Maryland</i>
2016 - 2019	NASA Earth and Space Science Fellowship, 28 out of 180 selected	<i>NASA</i>
2016	Hartmann Student Travel Grant,	<i>AAS</i>
2014	Departmental Honors in Astronomy,	<i>Vassar College</i>
2014	Departmental Honors in Physics,	<i>Vassar College</i>
2014	General Honors,	<i>Vassar College</i>
2014	Sigma Xi,	
2013	Ethel Hickox Pollard Memorial Physics Award,	<i>Vassar College</i>
2013	Janet Murray '31 Memorial Scholarship,	<i>Vassar College</i>

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