Zeeve **Rogoszinski**

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Skills

✓ High Performance Computing ✓ Reporting and Proposal Writing ✓ Data Mining and Visualization

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)

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.
- Taught two lab sessions and one discussion section for the Astronomy 101 course over five semesters.

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.

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*