

University of Maryland – Department of Astronomy

Undergraduate Honors Research Projects

<i>TITLE</i>	STUDENT	ADVISOR(S)	YEAR
<i>Methodologies for Analyzing and Evaluating Models of Quasar Variability</i>	Jacob Golomb	Cole Miller	2020
<i>Signatures of Clouds in Hot Jupiter Atmospheres: Modeled High Resolution Emission Spectra from 3D General Circulation Models</i>	Caleb Harada	Eliza Kempton	2020
<i>Investigations into Blazar Flare Mechanics</i>	Claire Hinrichs	Richard Mushotzky	2020
<i>Calibration and Data Simulation for RIMAS, the Rapid Infrared Imager-Spectrometer</i>	Jillian Kunze	Alexander Kuttyrev, Sylvain Veilleux	2020
<i>Exploring Spatial and Temporal changes in Hydration on the Lunar South Pole</i>	Kristen Laferriere	Lori Feaga, Jessica Sunshine	2020
<i>Probing Hot Jupiter Temperatures with TESS Photometry</i>	Ryan Morris	Drake Deming	2020
<i>Cross-Dispersion System for an Integrated Photonic Spectrograph</i>	Meghna Sitaram	Sylvain Veilleux	2020
<i>Developing a New Software Pipeline to Spectroscopically Classify BCUs</i>	Ryan Skoletsky	Roopesh Ojha, Richard Mushotzky	2020
<i>Using Granular Dynamics Simulations with Cohesion to Create Fluffy Regolith</i>	Matthew Wilkin	Derek Richardson	2020
<i>K2 and Spitzer Transits of Four Super-Earth Exoplanets</i>	Alison Duck	Drake Deming	2019
<i>Dust Abundances in Molecular Clouds</i>	Benjamin Flaggs	Tracy Huard, Lee Mundy	2019
<i>K2 Legacy Data: Killing Planet Candidates with EVEREST and Searching for Candidates with Halo Photometry</i>	Michael Greklek-McKeon	Drake Deming	2019
<i>A New Method of Fitting Extinction Toward Molecular Clouds</i>	Kevin Hall	Lee Mundy	2019
<i>Search for Orbital Decay in WASP-126b and WASP-18b</i>	Justin Harrell	Drake Deming	2019

<i>Ionization Mechanisms in Quasar Outflows</i>	Jason Hinkle	Sylvain Veilleux	2019
<i>Mapping Water-Ice and Silicates Using Broadband Photometry of Background Stars</i>	Melanie Rowland	Tracy Huard, Lee Mundy	2019
<i>Exploring Star Formation in Five Compact Cores</i>	Emma Schwartzman	Lee Mundy, Isabelle Joncour	2019
<i>Distribution of Exoplanet Radii Determined from TESS Data</i>	Edward Williams	Drake Deming	2019
<i>Tidal Stresses in the 2029 Close Encounter with Earth of Proposed APEX Mission Target 99942 Apophis</i>	Joseph DeMartini	Derek Richardson	2018
<i>Removing Terrestrial Alteration from Meteorite Sample GRA 06128/9 Via Chemical Leaching</i>	Anna Engle	Jessica Sunshine	2018
<i>Assessing the Quality of Grid-Based Gravitational Fields</i>	Mark Hubbert	Doug Hamilton	2018
<i>Effects of Anisotropic Viscosity on the Evolution of AGN Bubbles in Galaxy Clusters</i>	Matthew Kingsland	Karen Yang, Richard Mushotzky	2018
<i>Asteroids Under Stress: Constraining Strength and Evolution Through Spin-Up Simulations</i>	Andrew Leisner	Derek Richardson	2018
<i>Exploring Shear-free Ringlet Formation with Directional Simulations of Saturn's A and B Rings</i>	Yuxi (Lucy) Lu	Derek Richardson	2018
<i>Finding Escaper YSOs in the Serpens Cloud Complex</i>	Roxana Popescu	Isabelle Joncour, Lee Mundy	2018
<i>Prospects for Ground-Based Detection and Follow-Up of TESS-Discovered Planets</i>	Matthew Varakian	Drake Deming	2018
<i>Sky Localization, Electromagnetic Follow-up, and Cosmology for Third Generation Gravitational Wave Detectors</i>	Shreya Anand	Leo Singer, Cole Miller	2017
<i>Suppression of AGN-Driven Turbulence by Magnetic Fields in a Magnetohydrodynamic Model of the Intracluster Medium</i>	Christopher Bambi	Cole Miller, Chris Reynolds	2017
<i>Characterizing Hot Jupiters with Secondary Eclipses: A Statistical Study Using Pixel-Level Decorrelation</i>	Emily Garhart	Drake Deming	2017

<i>Primordial Black Holes as Dark Matter Candidates: A Numerical Model of Primordial Black Hole Binary Formation and Evolution</i>	Victor Meszaros	Massimo Ricotti	2017
<i>Heating in Intracluster Gas via Gravity Waves</i>	Xiao (Jennifer) Liang	Chris Reynolds	2016
<i>Confirming Variability in the Secondary Eclipse Depth of the Super-Earth 55 Cnc e</i>	Patrick Tamburo	Drake Deming	2016
<i>Library of Tools for Manipulating 3-D Grids Including the Production of Numerically Determined Gravitational Fields</i>	Harry Arnold	Doug Hamilton	2015
<i>Tracing Exotic Photon Trajectories around Black Holes</i>	Allison Bostrom	Cole Miller, Chris Reynolds	2015
<i>Tracing Dense Gas in NGC 1333</i>	Kenneth Koester	Lee Mundy	2015
<i>Testing and Exploration of the Rotating Neutron Star Code</i>	Justin Tervala	Cole Miller	2015
<i>Assessing Flat Field Quality at the University of Maryland Observatory</i>	David Blankenship	Andrew Harris	2014
<i>Global Variations in Lunar Highlands Composition</i>	Lily Mannoia	Jessica Sunshine	2014
<i>The Formation of the Kepler-36 Planetary System</i>	Thomas Rimlinger	Doug Hamilton and Derek Richardson	2014
<i>Characterizing Star Formation in the Perseus Cloud</i>	Lauren Bittle	Lee Mundy	2013
<i>Numerical Studies of Stochastically Perturbed Accretion Discs</i>	Philip Cowperthwaite	Chris Reynolds	2013
<i>Formation Scenarios and Evolution of the Milky Way's Old Globular Cluster Population</i>	Harley Katz	Massimo Ricotti	2013
<i>The Modeling and Observation of Exoplanetary Transits</i>	Nolan Matthews	Drake Deming	2013
<i>Neutron Star Radii: Theoretical Tests of Frequency-Dependent Light curve Analysis</i>	Bryan Holler	Cole Miller	2012
<i>Numerical Modeling of Rotational Fission of Contact Binary Asteroids</i>	Brett M. Morris	Derek Richardson	2012
<i>Modes of Two Planet Migration via Planetesimal Scattering using HNBODY</i>	James Keane	Douglas P. Hamilton	2011

<i>Tracking Energetic Particle Trajectories in Simulations of Collisionless Magnetic Reconnection</i>	Kalman Knizhnik	Massimo Ricotti	2011
<i>Tilting Uranus—Toward a Collisionless Model</i>	Lauren Woolsey	Douglas P. Hamilton	2011
<i>Measurements of the Mass and Radius of the Neutron Star 4U 1636-53 Using Millisecond Brightness Oscillations during Thermonuclear X-ray Bursts</i>	Ryan Abrahams	Cole Miller	2010
<i>Mass and Radius Constraints of 4U 1728-34</i>	Brian Prager	Cole Miller	2010
<i>Mass Segregation around Supermassive Black Holes</i>	Ashley King	Cole Miller	2009
<i>Resonant Origins for Pluto’s High Inclination</i>	Curran Muhlberger	Douglas P. Hamilton	2008
<i>Calibration of the Baryonic Tully-Fisher Relation Using Gas Dominated Galaxies</i>	David V. Stark	Stacy McGaugh	2008
<i>A Chandra X-ray Study of NGC 5775</i>	Diana Hanson	Chris Reynolds	2007
<i>Dynamics of Uranian Dust Sheets</i>	Alexandra Lockwood	Douglas P. Hamilton	2007
<i>Searching for Low Surface Brightness Galaxies</i>	Daniel Schwartz	Stacy McGaugh	2007
<i>Magnetorotational Instability: Theory and Experiment in Accretion Disk Dynamics</i>	Barbara Brawn	Eve Ostriker	2006
<i>CCD Photometry of the Globular Cluster ESO452-SC11</i>	Alexis Cornish	Suchitra Balachandran	2006
<i>Numerical Experiments with Rubble Piles: Critical Breakup Densities for Oblate Spheroids</i>	Pradeep Elankumaran	Douglas Hamilton	2006
<i>Dust Transfer Between Earth and Mars</i>	Paul Ries	Douglas Hamilton	2005
<i>A Computational Study of Core Rotation in Globular Clusters</i>	Mia Bovill	Cole Miller	2004
<i>Optical Monitoring of Blazars MRK421 and PKS1406-076</i>	Jessica Ennis	Christopher Reynolds	2004
<i>An Analytical Approach to the Distribution of Oort Cloud-Originating Comets</i>	Jeremy Miller	Douglas Hamilton	2004
<i>The Orbital Evolution of the Galilean Satellites</i>	Kaveh Pahlevan	Douglas Hamilton	2004
<i>Determination of the Density of Jupiter’s Moon Amalthea</i>	Robyn Sanderson	Douglas Hamilton	2003

<i>Interaction of a Planar Shock Wave with Cloud Material in the Interstellar Medium</i>	Eric Schindhelm	James Stone, Douglas Hamilton, Cole Miller	2003
<i>Orbital Dynamics of Asteroidal Dust</i>	Patrick Taylor	Douglas Hamilton	2003
<i>Undergraduate Comprehension of Cosmology by Gender and Informal Education</i>	Elizabeth Miller	Grace Deming	2002
<i>Dynamical Evolution of the Jovian Satellite System</i>	Amada Proctor	Douglas Hamilton	2002
<i>A Superstar Cluster in NGC 3690</i>	Stacy Teng	Lee Mundy	2002
<i>Cosmological Constraints from Rotation Curves of Low Surface Brightness Galaxies</i>	Michael Barker	Stacy McGaugh	2001
<i>Optical and Far-Ultraviolet Morphology of Galaxies</i>	Melanie Freed	Sylvain Veilleux	2001
<i>Origins of the Terrestrial Planets: Numerical Simulations to Explore Planetary Formation</i>	Amir Caspi	Douglas Hamilton	2000
<i>Seeking Evidence of Frame Dragging in Active Galactic Nuclei</i>	Sheri Calvo	Wan Chen	1999
<i>Emission Line Observations of Comet Hale-Bopp</i>	Nathaniel Doane	Michael A'Hearn	1999
<i>Dusty Rings around Saturn</i>	Linda Harden	Douglas Hamilton	1998
<i>Modeling of CO Line Emission from Circumstellar Disks</i>	Stephanie McLaughlin	Lee Mundy	1998
<i>An Infrared Study of Saturn's Rings during the Ring Plane Crossing of 1995</i>	Lori Lanier	Douglas Hamilton	1997