Erika R. Nesvold

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RESEARCH EXPERIENCE

Postdoctoral Fellow 2015-Present
Carnegie Department of Terrestrial Magnetism (DTM)
Conducted and published independent and collaborative theoretical research on the dynamics of exoplanets and debris disks, using my own computational models and tools developed in C, IDL, and Python.

Graduate Researcher 2010-2015
NASA Goddard Space Flight Center (GSFC)
Developed a new collisional model of debris disks using parallelized C code. Applied model to observations of debris disks to analyze effects of collisions on planet-disk interactions.
Advisor: Dr. Marc Kuchner

EDUCATION

Ph.D., Physics
August 2015, University of Maryland, Baltimore County (UMBC)
"Modeling Collisions in Circumstellar Debris Disks"
Advisor: Dr. Marc Kuchner, NASA Goddard Space Flight Center

M.S., Applied Physics
May 2011, UMBC

B.S., Mathematics
May 2009, UMBC
magna cum laude

TEACHING EXPERIENCE

Teaching Assistant 2009-2011
UMBC Physics Department

- Algebra-Based Introductory Physics Spring 2011
  Supervised 15 students in an introductory physics lab involving experiments and demonstrations in electricity, magnetism, optics, and modern physics
- Upper-Level Undergraduate Optics Fall 2009, Fall 2010
  Supervised 12 students in a 300-level optics lab and graded weekly lab reports
- Calculus-Based Introductory Physics Spring 2010
  Led a discussion section of 50 students and wrote and graded weekly quizzes

INSTITUTIONAL SERVICE

Representative, Carnegie DTM/GL Postdoctoral Association 2016-2017

Organizer, Carnegie DTM Astro Seminar 2011-2015

Reviewer, NSF Review Panel

Referee, Astronomy & Astrophysics Journal, The Astrophysical Journal, Publications of the Astronomical Society of Australia

Executive Secretary, NASA PATM Review Panel

GRANTS, AWARDS, AND HONORS

ALMA Cycle 5 Observing Proposal 2017
Co-I, *Disk eccentricity and circumplanetary dust in the HD 106906 system*
PI: A. Meredith Hughes

ALMA Cycle 5 Observing Proposal 2017
Co-I, *Debris Disk Structure Around Nearby Sun-like Stars with the ACA*
PI: Meredith MacGregor

ALMA Cycle 4 Observing Proposal 2016
Co-I, *Debris Disk Structure around Nearby Sun-like Stars*
PI: David Wilner

ALMA Cycle 4 Observing Proposal 2016
Co-I, *The Debris Disk Surrounding HD 107146: A Possible Super-Earth at 80 AU*
PI: John Carpenter

Magellan Observing Proposal 2015
PI, *Imaging the White Dwarfs with the Most Massive Progenitors*

ALMA Cycle 3 Observing Proposal 2015
Co-I, *Debris Disk Structure around Nearby Sun-like Stars*
PI: David Wilner

Carnegie DTM Postdoctoral Fellowship 2015
Carnegie DTM
3-year postdoctoral fellowship

ALMA Student Observing Support Grant 2014
National Radio Astronomy Observatory
Student funding associated with ALMA observations ($27 K)

ALMA Cycle 2 Observing Proposal 2014
Co-I, *Confirming the recent collisional destruction of an extra-solar Pluto*
PI: Chris Stark

HST Theory Grant 2013
Co-I, *SMACK: A New Tool for Modeling Images of Debris Disks* ($110 K)
PI: Marc Kuchner

Student Stipend Award 2012
Division of Dynamical Astronomy (DDA)
Travel grant to present at the 2012 DDA Meeting

Graduate Assistantships in Areas of National Need 2009-2011
Department of Education
Graduate fellowship providing full tuition and student stipend

PUBLICATIONS

Nesvold, E. R., Naoz, S., Fitzgerald, M. P., 2017, *HD 106906: A Case Study for External Perturbations of a Debris Disk*, ApJL, 837, L6

Pan, M., **Nesvold, E. R.**, Kuchner, M. J., 2016, *Apocenter Glow in Eccentric Debris Disks: Implications for Fomalhaut and ϵ Eridani*, ApJ, 823, 81

Kuchner, M. J., Silverberg, S. M., Bans, A. S., Bhattacharjee, S., Kenyon, S. J., Debes, J. H., Currie, T., Garca, L., Jung, D., Lintott, C., McElwain, M., Padgett, D. L., Rebull, L. M., Wisniewski, J. P., **Nesvold, E. R.**, et al., 2016, *Disk Detective: Discover of New Circumstellar Disk Candidates through Citizen Science*, ApJ, 830, 84

Marino, S., Matra, L., Stark, C., Wyatt, M. C., Casassus, S., Kennedy, G., Rodriguez, D., Zuckerman, B., Perez, S., Dent, W. R. F., Kuchner, M., Hughes, A. M., Schneider, G., Steele, A., Roberge, A., Donaldson, J., and **Nesvold, E. R.**, 2016, *Exocometary gas in the HD 181327 debris ring*, MNRAS, 460, 2933

Nesvold, E. R., Naoz, S., Vican, L., Farr, W. M., 2016, *Circumstellar Debris Disks: Diagnosing the Unseen Perturber*, ApJ, 826, 19

Konishi, M., Grady, C. A., Schneider, G., Shibai, H., McElwain, M. W., **Nesvold, E. R.**, et al., 2016, *Discovery of an Inner Disk Component around HD 141569 A*, ApJL, 818, L23

Nesvold, E. R., Kuchner, M. J., 2015 *A SMACK Model of Colliding Planetesimals in the β Pictoris Debris Disk*, ApJ, 815, 61

Jang-Condell, H., Chen, C. H., Manoj, P., Watson, D., Lisse, C., **Nesvold, E.**, Kuchner, M., 2015, Spitzer *IRS Spectra of Debris Disks in the Scorpius-Centaurus OB Association III*, ApJ, 808, 167

Nesvold, E. R., Kuchner, M. J., 2015, *Gap Clearing by Planets in a Collisional Debris Disk*, ApJ, 798, 83

Nesvold, E. R., Kuchner, M. J., Rein, H., Pan, M., 2013, *SMACK: A New Algorithm for Modeling Collisions and Dynamics of Planetesimals in Debris Disks*, ApJ, 777, 144

INVITED TALKS AND SEMINARS

"Numerical Integration Methods in Planetary Science" August 2017
University of Toronto at Scarborough, Canada

AstroCon DC Conference July 2017
George Washington University

"Impacts in Planetary Systems" Conference May 2017
Lund Observatory, Sweden

Astrophysics Colloquium March 2017
American Museum of Natural History, New York City

iPLEX Lunch Talk October 2016
University of California, Los Angeles

Astrophysics Informal Seminar March 2016

Institute for Advanced Study

Planetary Lunch Colloquium March 2016
Massachusetts Institute of Technology

Center for Exoplanets & Habitable Worlds Seminar December 2014
Penn State University

Planet and Star Formation Seminar October 2014
University of California Berkeley

Astrophysics Colloquium October 2014
NASA Jet Propulsion Laboratory

Infrared Processing and Analysis Center Seminar October 2014
California Institute of Technology

Journal Club Talk October 2014
University of California Los Angeles

Astro Seminar October 2014
Carnegie Department of Terrestrial Magnetism

Planetary Astronomy Seminar October 2014
University of Maryland College Park

Radio and Geoastronomy Lunch Talk September 2014
Harvard-Smithsonian Center for Astrophysics

Exoplanet Seminar Series November 2013
NASA/GSFC

STScI Star and Planet Formation Seminar Series October 2013
Space Telescope Science Institute

Astrophysics and Supercomputing Colloquium March 2013
Swinburne University

ICRAR/UWA Seminar March 2013
International Centre for Radio Astronomy Research,
University of Western Australia

SCIENTIFIC POSTERS AND PRESENTATIONS

Exoclipse 2017: Exploring New Worlds in the Shade August 2017
Presentation · Boise, Idaho
"Inside-Out Systems: Using Debris Disks to Find Exterior, Wide-Orbit Companions"

Formation and Dynamical Evolution of Exoplanets March 2017
Presentation · Aspen, Colorado
"HD 106906: A Case Study for External Perturbations of a Debris Disk"

Planetary Science Vision 2050 Workshop February 2017
Poster · Washington, DC
"The Deflector Selector: A Machine-Learning Algorithm for Prioritizing Deflec-

tion Technology Development"

48th Division for Planetary Sciences (DPS) Meeting October 2016
Presentation · Pasadena, California
"HD 106906: A Case Study for External Perturbations of a Debris Disk"

227th American Astronomical Society (AAS) Meeting January 2016
Presentation · Kissimmee, Florida
"Warm Circumstellar Debris Disks: Dynamical Excitation by Massive External Perturbers?"

47th DPS Meeting November 2015
Poster · National Harbor, Maryland
"Collisional Cascade in a Debris Disk from an External Perturber"

29th International Astronomical Union (IAU) General Assembly August 2015
Poster · Honolulu, Hawaii
"A SMACK Model of Colliding Plantesimals and Dust in the β Pictoris Debris Disk"

In the Spirit of Bernard Lyot June 2015
Presentation · Montreal, Quebec
"A SMACK Model of Colliding Plantesimals and Dust in the β Pictoris Debris Disk"

225th AAS Meeting January 2015
Thesis Presentation · Seattle, Washington
"Modeling Collisions in Circumstellar Disks with SMACK"

30 Years of beta Pic Conference September 2014
Poster · Institut d'Astrophysique de Paris
"Gap Clearing by Planets in a Collisional Debris Disk"

5th National Capital Area Disks (NCAD) Meeting July 2014
Presentation · Carnegie DTM
"Gap-Opening by Planets in Debris Disks"

223rd AAS Meeting January 2014
Presentation · National Harbor, Maryland
"Modeling Eccentric Debris Rings with SMACK: Collisions Change Everything"

5th Subaru International Conference December 2013
Presentation · Kona, Hawaii
"SMACK: A New Algorithm for Modeling Collisions and Dynamics of Debris Disks"

45th DPS Meeting October 2013
Presentation · Denver, Colorado
"SMACK: A New Collisional Algorithm for Modeling Collisions and Dynamics in Debris Disks"

DC/MD/VA Astrophysics Summer Meeting for Grad Students July 2013
Presentation · University of Maryland, College Park

"A New Collisional Algorithm for Modeling Collisions and Dynamics in Debris Disks"

2013 Rocks! ALMA Conference April 2013
Poster · Kona, Hawaii
"SMACK – A New Method for Modeling How Collisions and Planets Affect Debris Disks"

4th NCAD Meeting July 2012
Presentation · STScI
"Debris Disks: Modeling Collisions and Dynamics Together"

Division of Dynamical Astronomy (DDA) Meeting May 2012
Presentation · Mt. Hood, Oregon
"A New Algorithm for Modeling Collisions in Debris Disks"

Signposts of Planets Conference October 2011
Poster · NASA/GSFC
"A New Algorithm for Modeling Collisional Evolution of Debris Disks in 3-D"

EDUCATION AND PUBLIC OUTREACH

GMU Observatory Public Talk May 2017
George Mason University
"Debris Disks: Finding Planets Using the Mess They Leave Behind"

UNE & Northern Tablelands Astronomical Society Public Talk April 2017
University of New England, Armidale, Australia
"Debris Disks: What Astronomical Leftovers Can Tell Us about Planets"

Guest blogger for **The Planetary Society** Various
http://www.planetary.org/

Carnegie Institution Lunch & Learn Lecture February 2016
Carnegie Headquarters
"Computational Astronomy: Destroying Virtual Asteroids for Fun and Profit"

Astronomy on Tap Talk October 2015
Washington, DC
"Computational Astronomy: Destroying Virtual Asteroids for Fun and Profit"

Member of **Disk Detective** science team January 2014-present
Participated in social media outreach program for the NASA-funded Zooniverse Disk Detective citizen science program.
www.diskdetective.org

Women in Public Service Project Conference June 2013
University of Massachusetts Lowell
Sharing STEM: Innovation, Entrepreneurship, and Community Engagement Panel

Mulligan Memorial Lecture May 2012
UMBC
"The Life and Work of Nikola Tesla"

Maryland Space Sciences Interaction Day May 2012

NASA/GSFC
"Modeling Collisions in Debris Disks: A Path to Finding Exoplanets"

Writer for **Astrobites** blog 2012-2015
Contributed monthly posts to the Astrobites blog, summarizing recent astrophysics publications. Edited other contributors' posts. Represented Astrobites at the 2014 Winter AAS meeting.
www.astrobites.org