Michael Hammer

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RESEARCH INTERESTS

Formation and Evolution of Planets and Planetary Systems

(1) Numerical simulations
(2) Applications to our solar system

EDUCATION

University of Arizona, Tucson, AZ — August 2015 – Present
Ph.D. Student in Astronomy
Advisor: Professor Kaitlin Kratter

Cornell University, College of Arts and Sciences, Ithaca, NY — May 2015
B.A. in Physics with an Astrophysics Concentration
Minor in Computer Science

RESEARCH EXPERIENCE

Undergraduate Researcher — January 2014 – June 2015
Theoretical Astrophysics Group, *Cornell University* — *Ithaca, NY*
Advisors: Dr. Diego Muñoz and Professor Dong Lai
- Utilizing the Mercury package to analyze the stability of circumbinary planets with inclined orbits

LEAPS Intern (LEAPS Program at Leiden) — June 2014 – August 2014
Computational Astrophysics Group, *Sterrewacht Leiden* — *Leiden, The Netherlands*
Advisors: Dr. Lucie Jílková and Professor Simon Portegies Zwart
- Determined which types of stellar flyby orbits can transfer objects from one disk to the other

NSF REU Intern — June 2013 – August 2013
Solar Physics Group, *Harvard-Smithsonian Center for Astrophysics* — *Cambridge, MA*
Advisors: Dr. Kamen Kozarev and Dr. Kelly Korreck
- Analyzed kinematics of coronal shock waves with the goal of predicting space weather at the Earth

Undergraduate Researcher — November 2011 – November 2012
Sub-mm Instrumentation Group, *Cornell University* — *Ithaca, NY*
Advisors: Professor Gordon Stacey and Dr. Thomas Nikola
- Developed a Python GUI to produce, display, and analyze spectra from the ZEUS-2 spectrometer

NASA SRMP Intern (Science Research Mentoring Program) — September 2010 – June 2011
Planetary Science Division, *American Museum of Natural History* — *New York City, NY*
Advisors: Mike Greenberg and Dr. Denton Ebel
- Processed images of 3D scans of comet particle impact tracks retrieved by NASA's Stardust Mission

COMPUTER EXPERIENCE

Languages: Java, Python, IDL, Unix, C, C++, MATLAB, OCaml, HTML
Operating Systems: Mac OS, Linux, Windows

PUBLICATIONS

[1] Jílková, L., Portegies Zwart, S., Pijloo, T., **Hammer, M.** 2015, How Sedna and family were captured in a close encounter with a solar sibling, MNRAS (accepted)

[2] Kozarev, K. A., Raymond, J. C., Lobzin, V. V., **Hammer, M.** 2015, Properties of a Coronal Shock Wave as a Driver of Early SEP Acceleration, ApJ, 799, 167

[3] Greenberg, M. & Ebel, D. S. 2012, Properties of original impactors estimated from three-dimensional analysis of whole Stardust tracks, Meteoritics and Planetary Science, 47, pp. 634-648.

POSTERS

[1] **Hammer, M.**, Jílková, L., Portegies Zwart, S. 2015, Transferring Mass between Circumstellar Disks during Stellar Flybys. AAS Meeting 225, #349.02

[2] **Hammer, M.**, Kozarev, K. A., & Korreck, K. E. 2014, Kinematics of Waves in the Solar Corona: Analyzing Potential Shock Waves to Predict Solar Energetic Particle Fluxes in Space Weather. AAS Meeting 223, #158.02

[3] **Hammer, M.**, et al. 2014, The Cornell Astronomical Society: The Student Experience of Running an Observatory. AAS Meeting 223, #160.03

TALKS

(1) LEAPS Symposium — August 2014

(2) Solar Physics REU Symposium — August 2013

OUTREACH

(A) **Contributing Author**, ZME Science — September 2014 – present
My Articles: http://www.zmescience.com/author/michaelhammer/

(B) **Outreach Coordinator**, Cornell Society of Physics Students — January 2012 – December 2014
(i) Organized outreach events, (ii) Recruited students for volunteering, (iii) Co-managed SPS Website

(C) **President**, Cornell Astronomical Society — June 2013 – June 2014
(i) Ran weekly stargazing nights, (ii) Gave public lectures, (iii) Set up events with Astro. Dept.

(D) **Writer**, The Triple Helix: Science in Society Journal — August 2011 – December 2011
My Spring 2012 Article: https://lavinia.as.arizona.edu/~mhammer/articles/TTHarticle.pdf

PROFESSIONAL SOCIETIES

Junior Member, American Astronomical Society — December 2014 – Present

Member, Society of Physics Students — October 2013 – Present