Michael Hammer

https://lavinia.as.arizona.edu/~mhammer/

RESEARCH INTERESTS

Formation and Evolution of Planets, Protoplanetary Disks, and Planetary Systems

- Numerical simulations (Hydro-dynamics and N-body dynamics)

EDUCATION

University of Arizona, *Tucson, AZ* — August 2015 – Present
Ph.D. Candidate in Astronomy and Astrophysics — 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]

AWARDS

(1) NSF Graduate Research Fellowship — August 2015 – August 2018

GRADUATE RESEARCH EXPERIENCE

Graduate Researcher — August 2015 – Present
Star and Planet Formation Theory Group, *University of Arizona* — *Tucson, AZ*
Advisors: Professor Kaitlin Kratter, Dr. Paola Pinilla, and Dr. Min-Kai Lin

- Determined vortices are weaker when triggered by realistically-grown planets
- Determined these vortices have elongated appearances in dust observations

UNDERGRADUATE RESEARCH EXPERIENCE (selected)

Undergraduate Researcher — January 2014 – June 2015
Theoretical Astrophysics Group, *Cornell University* — *Ithaca, NY*
Advisors: Dr. Diego Muñoz and Professor Dong Lai

- Utilized the Mercury package to analyze the stability of circumbinary planets

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 stellar flyby orbits transfer objects between debris disks

WORKSHOPS

(1) NExSS Winter School: *Planetary Habitability (Tucson, AZ)* — February 2016
(2) NExScI Sagan Workshop: *Exoplanet Demographics (Pasadena, CA)* — July 2015

PUBLICATIONS (2 first-author, 7 total)

[1] Su, K., Jackson, A., Gáspár, A., Rieke, G. et al. including **Hammer, M.,** 2019, *Extreme Debris Disk Variability: Exploring the Diverse Outcomes of Large Asteroid Impacts During the Era of Terrestrial Planet Formation*, AJ, 157, 202

[2] **Hammer, M.**, Pinilla, P., Kratter, K., Lin, M.-K., 2019, *Observational diagnostics of ... planet-induced vortices with realistic planet formation time-scales*, MNRAS, 482, 3609

[3] Kozarev, K., Davey, A., Kendrick, A., **Hammer, M.**, Keith, C., 2017, *The Coronal Analysis of SHocks and Waves (CASHeW) framework*, JSWSC, 7A, 32

[4] **Hammer, M.**, Kratter, K., Lin, M.-K., 2017, *Slowly-growing gap-opening planets trigger weaker vortices*, MNRAS, 466, 3533

[5] Jílková, L., Hamers, A., **Hammer, M.**, & Portegies Zwart, S., 2016, *Mass transfer between debris discs during close stellar encounters*, MNRAS, 457, 4218

[6] 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, 453, 3157

[7] Kozarev, K. A., Raymond, J. C., Lobzin, V. V., **Hammer, M.** 2014, *Properties of a Coronal Shock Wave as a Driver of Early SEP Acceleration*, ApJ, 799, 167

TALKS (selected)

Planet-induced vortices: The effects of realistic planet formation timescales (Version 2)

(1) From protoplanetary discs to planetary systems *(Ringberg Castle, Germany)* September 2019

(2) Star and Planet Formation in the Southwest 2 *(Oracle, AZ)* March 2018

Planet-induced vortices: The effects of realistic planet formation timescales (Version 1)

(1) Protoplanetary Disk Meeting *(Los Alamos, NM)* August 2017

(2) Emerging Researchers in Exoplanets Symposium *(Ithaca, NY)* June 2016

Transferring Disks during Stellar Flybys

(1) LEAPS Symposium *(Leiden, The Netherlands)* August 2014

OUTREACH (selected)

(A) **Instructor**, UA Sky School, August 2019 – Present
Facilitating elementary school student teams in conducting three-day research projects

(B) **Teacher-in-training**, ISEE Professional Development Program March 2019 – June 2019
Taguht full-day inquiry activity to undergraduate participants in AstroCom NYC

(C) **Author**, Astrobites December 2015 – December 2018
(i) https://astrobites.org/author/mhammer/, (ii) Advertising chair, (iii) Social media czar

(D) **Outreach Coordinator**, Cornell Society of Physics Students Jan. 2012 – Jan. 2015
(i) Organized outreach events, (ii) Recruited students for events, (iii) Managed Website

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