

Melissa D. Cashion, PhD

Postdoctoral Research Scholar
curriculum vitae

email: mdcashio@asu.edu
School of Earth and Space Exploration, Arizona State University
781 Terrace Mall, Tempe, AZ 85287

EDUCATION

Purdue University (West Lafayette, IN) Aug. 2020 – May 2024
Doctor of Philosophy – Planetary Science
Advised by Prof. Brandon Johnson

Texas A&M University (College Station, TX) Aug. 2016 – May 2020
Bachelor of Arts – Physics
Astrophysics and mathematics minors

RESEARCH AND TEACHING EXPERIENCE

Guest lecture, *Impact Cratering: Contact and Compression*, Purdue University (September 2023)

Undergraduate research mentor, Purdue University: Josuan Vega (Fall 2023 – Spring 2024), Eva Veeningen (Fall 2023), John Herring (Spring 2023)

Teaching Assistant, *Introduction to Oceanography*, Purdue University (Autumn 2021)

CIERA Research Experience for Undergraduates, *The Evolution of Planetary Systems in Dense Star Clusters*, Northwestern University (June 2019 – Aug. 2019)

Undergraduate Research Assistant, *Statistical modeling of galactic stellar kinematics*, Texas A&M University (Jan. 2018 – June 2019)

AWARDS

Outstanding Graduate Student (2024)

Wolfram technologies staff pick: Europa's Double Ridges Produced by Ice Wedging (2024)

O. Richard Norton Fund travel award (2022)

Best 3-minute talk runner-up (2022)

PRESENTATIONS & ABSTRACTS

Cashion, M. D., (2024) Chondrule formation indicates protracted growth of giant planet cores. Brown University, Providence, RI.

- Cashion, M. D.**, Johnson, B. C., Deienno, R., Kretke, K., Walsh, K., Krot, A. N., (2024) The protracted growth of giant planet cores as indicated by chondrule formation, 55th Lunar and Planetary Science Conference, The Woodlands, TX.
- Cashion, M. D.**, Johnson, B. C., Deienno, R., Kretke, K., Walsh, K. (2023) Chondrules: A Consequence of Giant Planet Accretion (poster), Gordon Research Conference: Origins of Solar Systems, South Hadley, MA.
- Cashion, M. D.**, Johnson, B. C., Sori, M. M., Gibson, H., Turtle, E. P. (2023) An Ice Wedging Origin for Europa's Double Ridges, 54th Lunar and Planetary Science Conference, The Woodlands, TX.
- Cashion, M. D.** (2022) Chondrules as Byproducts of Giant Planet Formation, invited talk at Southwest Research Institute, Boulder, CO.
- Cashion, M. D.**, Johnson, B. C., Deienno, R., Walsh, K. J., Krot, A. N. (2022) Chondrules as Byproducts of Giant Planet Formation, 85th Annual Meeting of The Meteoritical Society, Glasgow, Scotland.
- Krot, A. N., Nagashima, K., Ivanova, M. A., Humayun, M., Libourel, G., Johnson, B. C., **Cashion, M. D.**, Bizzarro, M. (2022) Oxygen Isotopic Compositions of Minerals in Chondritic and Achondritic Lithologies of the CB Carbonaceous Chondrite Sierra Gorda 013, 85th Annual Meeting of The Meteoritical Society, Glasgow, Scotland.
- Krot, A. N., Nagashima, K., Ivanova, M. A., Lauretta, D. S., Libourel, G., Johnson, B. C., **Cashion, M. D.**, Bizzarro, M. (2022) Oxygen-Isotope Compositions of Chondrules in Metal-Rich Carbonaceous Chondrites Fountain Hills and Sierra Gorda 013, 53rd Lunar and Planetary Science Conference, The Woodlands, TX.
- Cashion, M. D.**, Johnson, B. C., Wakita, S., Davison, T., Krot, A. N., Kretke, K., Walsh, K. (2021) Producing Chondrules in the Outer Solar System: The Effect of Ice on Impact Jetting, 52nd Lunar and Planetary Science Conference, remote.
- Cashion, M. D.**, Kremer, K., Spera, M., Rasio, F. (2020), The Evolution of Planetary Systems in Dense Star Clusters, 235th American Astronomical Society Meeting, Honolulu, HI.
- Sharp, H., **Cashion, M. D.**, Walsh, J., Barth, A. J., Shields, J., Sarzi, M. (2020) Stellar Kinematics of NGC 4203, 235th American Astronomical Society Meeting, Honolulu, HI.
- Cashion, M. D.** (2019) The History of Planets in Dense Star Clusters (poster), Adler Planetarium, Chicago, IL & Northwestern University, Evanston, IL.

PUBLICATIONS

- Cashion, M. D.**, Johnson, B. C., Walsh, K., Deienno R., Kretke, K., Krot, A. N., (2025) Chondrule formation indicates protracted growth of giant planet cores. *Icarus*, 429, 116400.
- Cashion, M. D.**, Johnson, B. C., Gibson, H., Turtle, E. P., Sori, M. M. and Melosh, H. J. (2024) Europa's Double Ridges Produced by Ice Wedging. *Journal of Geophysical Research: Planets*.
- Cashion, M. D.**, Johnson, B. C., Krot, A. N., Kretke, K. A., Wakita, S. and Davison, T. M., (2022). Chondrule formation via impact jetting in the icy outer solar system. *Icarus*, 384, p.115110.

Krot, A. N., Petaev, M. I., Nagashima, K., Dobrică, E., Johnson, B. C. and **Cashion, M. D.**, (2022). Impact plume-formed and protoplanetary disk high-temperature components in CB and CH metal-rich carbonaceous chondrites. *Meteoritics & Planetary Science*, 57(2), pp.352-380.