ASTER GRAVELY TAYLOR (LEGAL NAME: JADEN G. TAYLOR)

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RESEARCH INTERESTS

- Astrophysical dynamics
- Planetary science
- Planetary and stellar disks
- Solar system small bodies
- Numerical modeling
- Magnetohydrodynamics
- Plasma physics
- Fluid dynamics

EDUCATION

PhD	Astronomy & Astrophysics, University of Michigan	(Expected) May 2028
MSc	Astronomy & Astrophysics, University of Michigan	(Expected) May 2025
BS	University of Chicago, B.S. in Astrophysics Minor in Biology *Summa cum laude*, GPA: 3.97	June 3, 2023

HONORS AND AWARDS

Hertz Fellowship (~$250,000)	2023
Rackham Merit Fellowship ($72,000)	2023
MICDE Fellowship ($4,000)	2023
LPI Career Development Award ($1,000)	2024
USRA Travel Fund ($2,000)	2024
Enrico Fermi Scholar Physical Sciences Collegiate Divisional Honors, 3rd Year	2022
Robert Maynard Hutchins Scholar	2021
University of Chicago Dean's List	2020-2023
Metcalf Scholar ($5,000)	2020
National Merit Scholar ($8,000)	2019-2023

FIRST- & SECOND-AUTHOR PUBLICATIONS

8. **A. Taylor**, D. Seligman, M. Holman, et al (2024). *Strong Nongravitational Accelerations and the Potential for Misidentification of Near-Earth Objects*. In prep.
7. **A. Taylor** & F. Adams (2024). *Radiative Signatures of Circumplanetary Disks and Envelopes During the Late Stages of Giant Planet Formation*. Submitted to Icarus.
6. **A. Taylor**, J. Steckloff, D. Seligman, et al (2024). *The Dynamical Origins of the Dark Comets and a Proposed Evolutionary Track.* Icarus, 116207, doi: 10.1016/j.icarus.2024.116207. (Link)
5. **A. Taylor** & F. Adams (2024). *Formation and Structure of Circumplanetary Disks and Envelopes during the Late Stages of Giant Planet Formation*. Icarus, 415, 116044, doi:10.1016/j.icarus.2024.116044. (Link)
4. **A. Taylor**, D. Farnocchia, D. Vokrouhlicky, et al (2024). *Seasonally Varying Outgassing as an Explanation for Dark Comet Accelerations*. Icarus, 408, 115822, doi:10.1016/j.icarus.2023.115822. (Link)

3. **A. Taylor**, D. Seligman, O. Hainaut, & K. Meech (2023). *Fitting the Light Curve of 1I/'Oumuamua with a Nonprincipal Axis Rotational Model and Outgassing Torques*. The Planetary Science Journal, 4, 186, doi:10.3847/PSJ/acf617. (Link)
2. W.G. Levine, **A. Taylor**, D. Seligman, et al (2023). *Interstellar Comets from Post–Main Sequence Systems as a Tracer of Extrasolar Oort Clouds*. The Planetary Science Journal, 4, 7, doi:10.3847/PSJ/acdf58. (Link)
1. **A. Taylor**, D. Seligman, D. MacAyeal, et al (2023). *Numerical Simulations of Tidal Deformation and Resulting Light Curves of Small Bodies: Material Constraints of 99942 Apophis and 1I/'Oumuamua*. The Planetary Science Journal, 4, 79, doi: 10.3847/PSJ/acccef. (Link)

OTHER REFEREED PUBLICATIONS

3. D. Seligman, D. Farnocchia, M. Micheli, et al (incl. **A. Taylor**) (2024) *Two Distinct, but Possibly Related, Populations of Dark Comets.* Under review at Proceedings of the National Academy of Sciences.
2. D. Seligman, A. Feinstein, D. Lai, et al (incl. **A. Taylor**) (2023). *Potential Melting of Extrasolar Planets by Tidal Dissipation*. The Astrophysical Journal. (Link)
1. D. Seligman, D. Farnocchia, M. Micheli, et al (incl. **A. Taylor**) (2023) *Dark Comets? Unexpectedly Large Non-Gravitational Forces on a Sample of Inactive Solar System Small Bodies*. The Planetary Science Journal, 4, 35, doi: 10.3847/PSJ/acb697. (Link)

CONTRIBUTED SCIENTIFIC PRESENTATIONS

Seminars:

- Society of Astronomy Students, UM (November 2023, outreach talk)
- Star and Planet Formation Seminar Series, UM (October 2023)
- Michigan State University, AstroCoffee (September 2023)

Conference Talks:

- Emerging Researchers in Exoplanet Science IX (July 11, 2024)
- Small Body Assessment Group Meeting 30 (January 30, 2024)
- Lunar and Planetary Science Conference 55 (March 14, 2024)

Conference Posters:

- Division of Dynamical Astronomy 55 (May 2024)
- Emerging Researchers in Exoplanet Science VIII (June 2023)
- AAS 241 (January 2023)

MEDIA HIGHLIGHTS

"This mysterious interstellar object could contain the universe's darkest secrets." *Inverse*, August 2023. (Link)

"Asteroids that speed up unexpectedly may be 'dark comets' in disguise." *New Scientist*, March 2023. (Link)

TEACHING EXPERIENCE

Undergraduate Teaching Assistant, University of Chicago

- Spring 2023: Astronomy 21100: Computational Methods for Astrophysics
- Autumn 2022: Astronomy 20500: Introduction to Python Programming with Applications to Astro Statistics
- Spring 2022: Astronomy 21100: Computational Methods for Astrophysics
- Autumn 2021: Astronomy 20500: Introduction to Python Programming with Applications to Astro Statistics
- Autumn 2020: Astronomy 18400: From the Big Bang to Human Consciousness

COMMUNITY SERVICE

ERES Mission & Vision Committee Member 2024

Helped to define the mission and goals of the ERES Conference Series.

President of the Ryerson Astronomical Society Sept 2021 to June 2023

Hosting lectures, observation nights, Dark Sky Trips, maintaining the historic observatory, running educational events for children

The University of Chicago, Chicago, IL

LANGUAGES

English: Native Language

American Sign Language: Advanced Low Speaking and Listening (ACTFL scale)

Mandarin: Intermediate Low Speaking and Listening, Novice Reading and Writing (ACTFL scale)