

Tomer D. Yavetz

THEORETICAL & COMPUTATIONAL ASTROPHYSICIST

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Current Position

Institute for Advanced Study

Postdoctoral Research Fellow; Member, School of Natural Sciences

Princeton, NJ

Sep. 2022 - Jul. 2025

Education

Columbia University, Department of Astronomy & Astrophysics

Graduate Student; Ph.D. Advisors: Kathryn V. Johnston and Lam Hui

New York, NY

Sep. 2017 - May. 2022

- Ph.D., Astronomy & Astrophysics (2022)
- M.Phil., Astronomy & Astrophysics (2020)
- M.A., Astronomy & Astrophysics (2019)

Princeton University, Department of Astrophysical Sciences

Undergraduate Student; Senior Thesis Advisor: David N. Spergel

Princeton, NJ

Sep. 2010 - Jun. 2014

- A.B., Astrophysical Sciences, *magna cum laude*, Phi Beta Kappa (2014)
- Certificate, Arabic Language and Culture (2014)

Professional and Leadership Experience

Astrobites

Hiring Committee Chair & Daily Rotation Writer

New York, NY

Jan. 2018 - Jul. 2021

- Led a committee of 20 application reviewers; planned the application process and oversaw the hiring decision-making process.
- Ran implicit bias training for the members of the hiring committee.
- Summarized prominent Astrophysics publications to make them more accessible to undergraduate researchers and the general public.

McKinsey & Company

Senior Business Analyst

Washington, DC & New York, NY

Jun. 2013 - Aug. 2017

- Worked closely with McKinsey teams and clients to solve strategic corporate problems.
- Pitched, designed, and delivered new learning programs for consultants across roles and tenure.
- Created and implemented a Firm-wide digital learning strategy to invest in new research and innovative technologies.

Israeli Defense Forces, Intelligence Corps

Squad Leader & Course Commander

Israel

Nov. 2006 - Apr. 2010

- Designed and taught intensive Arabic training courses for cadets and officers in an elite intelligence unit.
- Led a squad of four soldiers in classified intelligence gathering and analysis operations.

Awards and Fellowships

Bezos Member Fund Fellowship <i>Institute for Advanced Study</i>	2023-2024
Fund for Natural Sciences Fellowship <i>Institute for Advanced Study</i>	2023-2024
Corning Glass Works Foundation Fellowship <i>Institute for Advanced Study</i>	2022-2023
Graduate Research Fellowship <i>National Science Foundation</i>	2019-2022
Edith and Robert Fehr Fellowship <i>Columbia University</i>	2018-2019
Elected to Phi Beta Kappa Honor Society <i>Princeton University</i>	2014
Elected to Sigma Xi Scientific Research Honor Society <i>Princeton University</i>	2014
Graduated <i>magna cum laude</i> , Princeton University <i>Princeton University</i>	2014
Manfred Pyka Memorial Prize in Physics <i>Princeton University</i>	2011

Selected Talks and Colloquia

AMNH Astrophysics Seminar, <i>American Museum of Natural History</i>	05/2024
Contributed Conference Talk, <i>55th Meeting of the Division on Dynamical Astronomy, University of Toronto</i>	05/2024
STScI Journal Club Talk, <i>Space Telescope Science Institute</i>	04/2024
Bahcall Lunch Talk, <i>Princeton University</i>	03/2024
IAS Astrophysics Seminar, <i>Institute for Advanced Study</i>	03/2023
CCPP Astrophysics Seminar, <i>Center for Cosmology and Particle Physics, NYU</i>	02/2023
Galread, <i>Princeton University</i>	02/2023
Bahcall Lunch Talk, <i>Princeton University</i>	01/2023
Contributed Conference Talk, <i>53rd Meeting of the Division on Dynamical Astronomy, CCA, Flatiron Institute</i>	04/2022
Galread, <i>Princeton University</i>	02/2022
Cosmology Seminar, <i>Max Planck Institute for Astrophysics</i>	01/2022
IAS Coffee Talk, <i>Institute for Advanced Study</i>	11/2021
Contributed Conference Talk, <i>Local "Local Group" Group Meeting, CCA, Flatiron Institute</i>	11/2021
Galaxies Seminar, <i>Australian National University</i>	11/2021
IAS/Princeton Cosmology Lunch Talk, <i>Institute for Advanced Study</i>	10/2021
PI Cosmology Talk, <i>Perimeter Institute</i>	10/2021
CITA Cosmology Seminar, <i>Canadian Institute for Theoretical Astrophysics</i>	09/2021
Contributed Conference Talk, <i>Big Apple Dynamics School Symposium, CCA, Flatiron Institute</i>	08/2021
Contributed Conference Talk, <i>Streams 21 meeting, CCA, Flatiron Institute</i>	02/2021
SIFA Morning Tea Talk, <i>Sydney Institute for Astronomy</i>	12/2020
Poster Presentation, <i>2020 STScI Symposium: The Local Group: Assembly and Evolution</i>	08/2020
Westport Astronomical Society Lecture, <i>Westport Observatory</i>	05/2020
Astrophysics Colloquium, <i>LaGuardia Community College, NYC</i>	05/2019
CCA Lunch Talk, <i>Flatiron Institute, NYC</i>	08/2018

Professional Service

Co-organizer <i>NBIA Summer School on Astrophysical Dynamics of Gravitating Systems</i>	2024
Co-chair <i>Joint Princeton/IAS Colloquium Committee</i>	2023-2024
Organizer <i>Summer Streams Undergraduate Research Colloquium</i>	2023
Referee <i>MNRAS, JCAP, Advances in Space Research</i>	2017-2024

Publications

7. **Disrupted Wide Binaries as Dynamical Probes of Galactic Structure** [arXiv: 2407.07151](#)
Yavetz T. D., 2024, Submitted to The Astrophysical Journal
6. **Fuzzy dark matter dynamics in tidally perturbed dwarf spheroidal galaxy satellites** [arXiv: 2309.00039](#)
Widmark A., Yavetz T. D., Li X., 2023, Journal of Cosmology and Astroparticle Physics 2024 (03), 052
5. **Stream Fanning and Bifurcations: Observable Signatures of Resonances in Stellar Stream Morphology** [arXiv: 2212.11006](#)
Yavetz T. D., Johnston K. V., Pearson S., Price-Whelan A. M., Hamilton C., 2023, The Astrophysical Journal 954 (2), 215
4. **Construction of wave dark matter halos: Numerical algorithm and analytical constraints** [arXiv: 2109.06125](#)
Yavetz T. D., Li X., Hui L., 2022, Physical Review D 105 (2), 023512
3. **Separatrix divergence of stellar streams in galactic potentials** [arXiv: 2011.11919](#)
Yavetz T. D., Johnston K. V., Pearson S., Price-Whelan A. M., Weinberg M. D., 2021, MNRAS 501 (2), 1791-1802
2. **Oscillations and random walk of the soliton core in a fuzzy dark matter halo** [arXiv: 2011.11416](#)
Li X., Hui L., Yavetz T. D., 2021, Physical Review D 103 (2), 023508
1. **Why do Earth satellites stay up?** [arXiv: 1309.5244](#)
Tremaine S., Yavetz T. D., 2014, American Journal of Physics 82 (8), 769-777

Teaching Experience

Invited external lecturer <i>NBIA Summer School on Astrophysical Dynamics of Gravitating Systems</i>	2024
Teaching Development Program, advanced track <i>Center for Teaching & Learning, Columbia University</i>	2022
Departmental advisor to faculty teaching virtually <i>Department of Astronomy & Astrophysics, Columbia University</i>	2020-2021
Galactic Dynamics “Coding Lab” instructor <i>Department of Astronomy & Astrophysics, Columbia University</i>	2020
Lead departmental teaching fellow <i>Department of Astronomy & Astrophysics, Columbia University</i>	2019-2020
Teaching observation fellow <i>Center for Teaching and Learning, Columbia University</i>	2018-2019
Stars, Galaxies, and Cosmology lab instructor <i>Department of Astronomy & Astrophysics, Columbia University</i>	2018
Earth, Moon, and Planets lab instructor <i>Department of Astronomy & Astrophysics, Columbia University</i>	2018
Teaching assistant <i>Department of Astronomy & Astrophysics, Columbia University</i>	2017-2018
Learning portfolio manager <i>McKinsey & Company</i>	2016-2017
Peer academic advisor <i>Rockefeller College, Princeton University</i>	2013-2014
Undergraduate teaching assistant <i>Department of Astrophysical Sciences, Princeton University</i>	2013
Course commander and Arabic instructor <i>Israeli Defense Forces, Intelligence Corps</i>	2009-2010

Science Writing

Astrobites

Daily Rotation Writer 2018-2019

- [A Dizzying Diversity of Dwarf Galaxies](#) (Nov 29, 2019)
- [How to Un-squash a Galaxy](#) (Oct 29, 2019)
- [Making a Splash](#) (Oct 8, 2019)
- [Twins for the Win!](#) (Jul 4, 2019)
- [Three Stellar Populations? Unresolved Binaries? Mysteries of the Orion Nebula Cluster](#) (May 24, 2019)
- [Hunting for Stellar Streams](#) (Mar 12, 2019)
- [Where Did All the Dark Matter Go?](#) (Jan 30, 2019)
- [Understanding Dwarf Galaxies with a Heart of Steel](#) (Dec 17, 2018)
- [How the Milky Way Got its Spiral Arms](#) (Oct 22, 2018)
- [Do the Milky Way's Stellar Streams have that Fuzzy \(Dark Matter\) Feeling?](#) (Aug 16, 2018)
- [Measuring Masses with Microlensing: A White Dwarf Magnifying Glass](#) (Jul 24, 2018)
- [Stealing from the Solar System: the Effects of a Stellar Fly-By](#) (Jul 17, 2018)
- [Fantastic Tidal Features and Where to Find Them](#) (Mar 27, 2018)
- [How Much Does the Milky... Weigh?](#) (Feb 8, 2018)