

# Cailin Plunkett

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## Research Interests

Probing black hole properties and binary star evolution using gravitational-wave data. Emphasis on both data-driven and simulation-based methods.

## Education

<b>Massachusetts Institute of Technology</b>	<b>Cambridge, MA</b>
<i>Ph.D. candidate in Physics</i> (advisor: Salvatore Vitale)	<i>Aug. 2023 – present</i>
<b>Amherst College</b>	<b>Amherst, MA</b>
<i>B.A. in Physics and Mathematics</i>	<i>Sept. 2019 – May 2023</i>
Summa cum laude with distinction (GPA: 4.0/4.0)	

## Awards, Fellowships, and Honors

### *National*

Graduate Research Fellowship, <i>National Science Foundation</i>	2025–8
LeRoy Apker Award, <i>American Physical Society</i>	2023
Phi Beta Kappa Membership	2023
Barry M. Goldwater Scholarship	2022

### *Institutional*

Kellogg Fellowship (\$90,000 over three years), <i>Amherst College</i>	2025–8
Three Minute Thesis, People's Choice Award, <i>Amherst College</i>	2023
Bancroft Prize in Public Speaking, <i>Amherst College</i>	2023
William Warren Stifler Prize in Physics, <i>Amherst College</i>	2023
Mary Dailey Irvine Outstanding Thesis, <i>Five College Astronomy Dept.</i>	2023
Summer Research Fellowship, <i>University of Michigan</i>	2022
LIGO Summer Research Fellowship, <i>Caltech</i>	2021
Porter Prize in Astronomy, <i>Amherst College</i>	2020

## Publications

5. **C. Plunkett**, T. Callister, M. Zevin, S. Vitale. “Signatures of a subpopulation of hierarchical mergers in the GWTC-4 gravitational-wave dataset” Submitted to *PRL* (2026).
4. **C. Plunkett**, M. Mould, S. Vitale. “Constraining Population III stellar populations with next-generation gravitational-wave observatories.” *PRD* 112, 023039 (2025).
3. **C. Plunkett**, K. Follette, G.-D. Marleau, E. Nielsen. “Accreting companion occurrence rates using a new method to compute emission-line survey sensitivity.” *AJ* 169 262 (2025).

2. **C. Plunkett**, S. Hourihane, K. Chatzioannou. “Concurrent estimation of noise and compact-binary signal parameters in gravitational-wave data.” *PRD* 106, 104021 (2022).
1. S. Betti et al., incl. **C. Plunkett**. “The Comprehensive Archive of Substellar and Planetary Accretion Rates.” *AJ* 166 262 (2023).

## Presentations

<b>APS Global Physics Summit (contributed talk)</b> <i>What we talk about when we talk about hierarchical mergers</i>	<b>Denver, CO</b> <i>Mar. 2026</i>
<b>University of Tokyo RESCEU Seminar</b> <i>Black hole populations with gravitational waves: then, now, and the future</i>	<b>Tokyo, JP</b> <i>Jan. 2026</i>
<b>APS Global Physics Summit (contributed talk)</b> <i>Unveiling the stellar origins of high-redshift black hole mergers with next-generation gravitational-wave observatories</i>	<b>Anaheim, CA</b> <i>Mar. 2025</i>
<b>APS April Meeting (invited talk)</b> <i>Protoplanet population properties: a new method to compute survey sensitivity</i>	<b>Sacramento, CA</b> <i>Apr. 2024</i>
<b>APS April Meeting (contributed talk)</b> <i>Marginalizing over noise uncertainty in gravitational-wave parameter estimation</i>	<b>New York, NY</b> <i>Apr. 2022</i>

## Leadership, Outreach, and Engagement

<i>MIT Physics Graduate Admissions Advisory Council</i>	<i>Jan. 2024 – present</i>
■ Co-chair (since Aug. 2025) of advisory council aiming to improve equity in admissions and ensure all talented students receive due consideration. Organize and mentor for an application assistance program, through which I have individually supported 8+ students.	
<i>MIT Summer Research Program</i>	<i>Jan. 2024 – present</i>
■ Serve on admissions committee for summer program that targets students with limited access to research. Improve access to career preparation and networking resources.	
<i>MIT Graduate Women in Physics</i>	<i>Oct. 2023 – present</i>
■ Mentor two undergraduate women.	
<i>Climate and Community Committee</i>	
■ Co-chair of Physics and Astronomy Dept. committee charged with addressing systemic access issues and institutional barriers to success in physics and astronomy, both in and beyond the Department.	
<i>Spectra Phys. &amp; Astro. Club</i>	<i>Sept. 2021 – May 2023</i>
■ Ran a club to support physics students. Designed and led mentorship program and research internship symposium for two years. Developed application peer-review workshop.	
<i>Amherst Observatory</i>	<i>Sept. 2022 – May 2023</i>
■ Student manager of the observatory, which hosts five telescopes for teaching and recreation. Led training sessions and programmed middle school outreach events.	