

# Jacob Pilawa

Astrophysics Ph.D. Student, UC Berkeley

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<https://jacobpilawa.github.io/>

## EDUCATION

- **Ph.D., Astrophysics, University of California, Berkeley** Berkeley, CA  
Expected 2025, Advisor: [Chung-Pei Ma](#)
- **M.A., Astrophysics, University of California, Berkeley** Berkeley, CA  
Expected 2022
- **B.A., Astrophysics (with honors), Colgate University** Hamilton, NY  
August 2016 – May 2020, *summa cum laude*

## RESEARCH POSITIONS

Graduate Student, UC Berkeley	2020 –
Modeling and Simulations Engineer, The Aerospace Corporation	May 2019, 2020 – August 2019, 2020
Undergraduate Research Assistant, Colgate University	August 2019 – May 2020
REU Summer Research Fellowship, University of Wyoming	May 2018 – August 2018
Summer Research Fellow, Colgate University	May 2017 – August 2017

## HONORS & AWARDS

Outstanding Graduate Student Instructor Award, Berkeley	2021
Physics and Astronomy Department Alumni Award, Colgate University	2020
Phi Beta Kappa, Colgate University	2019
Dean's Award with Distinction, Colgate University	2016 – 2020
Charles A. Dana Scholarship, Colgate University	2018, 2019
George W. Cobb Fellowship, Colgate University	2017 – 2019
Pi Beta Phi French Honor Society	2018
Sigma Pi Sigma Physics Honor Society	2018
Phi Eta Sigma National Honor Society	2018

## TEACHING EXPERIENCE

Graduate Student Instructor, Astro 120, <i>Optical and Infrared Lab</i> , UC Berkeley	2021
Graduate Student Instructor, Astro C12, <i>The Planets</i> , UC Berkeley	2021
Graduate Student Instructor, Astro C10, <i>Introduction to General Astronomy</i> , UC Berkeley	2020
Co-Instructor, University Studies 350, <i>Design Lab</i> , Colgate University	2019, 2020
Tutor, Physics 232, <i>Introduction to Mechanics</i> , Colgate University	2017, 2020
Tutor, Astronomy 101, <i>Introduction to Astronomy</i> , Colgate University	2019
Tutor, Astronomy 220, <i>Observational Astronomy</i> , Colgate University	2018, 2019
Tutor, Physics 131, <i>Atoms &amp; Waves</i> , Colgate University	2017, 2018, 2019

## REFEREED PUBLICATIONS

6. M. Ashner, U. Paudel, M. Luengo-Kovac, **J. Pilawa**, T. Shaw, and G. Valley, “Photonic reservoir computer using speckle in multimode waveguide ring resonators,” *Opt. Express* 29, 19262-19277 (2021). [\[link\]](#)
5. C. Ilie, C. Levy, **J. Pilawa**, S. Zhang, “Probing below the neutrino floor with the first generation of stars.” Submitted to *Physical Review Letters*, (2021). [\[link\]](#)
4. C. Ilie, C. Levy, **J. Pilawa**, S. Zhang, “Constraining Dark Matter properties with the first generation of stars.” Submitted to *Physical Review D*, (2021). [\[link\]](#)
3. C. Ilie, **J. Pilawa**, S. Zhang, “Comment on ‘Multiscatter stellar capture of dark matter.’” *Physical Review D*, Volume 102, Issue 4, article id.048301 (2020). [\[link\]](#)
2. D. Dale, K. Anderson, L. Bran, I. Cox, C. Drake, N. Lee, **J. Pilawa**, F. Slane, S. Soto, ... , “Radial Star Formation Histories in 32 Nearby Galaxies.” *The Astronomical Journal* 159.5 (2020): 195. [\[link\]](#)
1. U. Paudel, M. Luengo-Kovac, **J. Pilawa**, T. Shaw, and G. Valley, “Classification of time-domain waveforms using a speckle-based optical reservoir computer,” *Opt. Express* 28, 1225-1237 (2020). [\[link\]](#)

## TALKS & POSTERS

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8. **J. Pilawa**, U. Paudel, M. Luengo-Kovac, G. Valley, J. Shaw, H. Doyle, M. Ashner, “Applications and Performance of Echo State Networks,” Photonics Department, The Aerospace Corporation. [[link to talk](#)] August 2020
7. **J. Pilawa**, “Astrophysical Sources as Dark Matter Detectors,” Honors Undergraduate Thesis Defense, Colgate University. [[link to talk](#)], [[link to thesis](#)] May 2020
6. U. Paudel, M. Luengo-Kovac, **J. Pilawa**, G. C. Valley, T. J. Shaw, “Reservoir computer using speckle in a multimode waveguide,” Invited Talk, Photonics West, San Francisco, CA. February 2020
5. **J. Pilawa**, “Multi-scatter capture of intermediate mass dark matter in Pop. III stars,” Undergraduate Thesis Defense, Colgate University. [[link to talk](#)] December 2019
4. **J. Pilawa**, U. Paudel, M. Luengo-Kovac, G. Valley, J. Shaw, “Speckle-based Reservoir Computing and Echo State Networks,” Photonics Department, The Aerospace Corporation. [[link to talk](#)] August 2019
3. **J. Pilawa**, et al., “EDGES: Radial Star Formation Histories of NGC4143 and UGC07639,” Poster Presentation (Galaxy Evolution), AAS 223, Seattle, Washington. [[link to poster](#)] January 2019
2. **J. Pilawa**, et al., “EDGES: Radial Star Formation Histories of NGC4143 and UGC07639,” Poster Presentation, KNAC Fall Symposium, Middlebury, VT. [[link to poster](#)] September 2018
1. **J. Pilawa**, K. Eckart, R. Stahlin, “The 2015-2016 Optical Outburst and Historic Light Curve of Blazar OJ287,” KNAC Fall Symposium, Colgate University, New York. [[link to poster](#)] September 2017

## PUBLIC OUTREACH

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Ho-Tung Vizualization Lab and Planetarium Show Host, Hamilton, NY	2017 – 2020
Foggy Bottom Observatory Star Party Host, Hamilton, NY	2018 – 2020
Science Outreach Educator, Colgate University Physics & Astronomy Department	2018 – 2019

## ACADEMIC SERVICE

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Panelist, Prospective Student Q&A Panel, UC Berkeley	March 2021
Incoming Graduate Student Visit Days Committee Member, UC Berkeley	March 2021