# 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
  August 2020 – May 2022
- **B.A., Astrophysics (with honors), Colgate University** — Hamilton, NY
  August 2016 – May 2020, *summa cum laude*

## Research Positions

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|---|---|
| Graduate Student Researcher, 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 |

## Publications

7. **J. D. Pilawa**, C. M. Liepold, S. C. Delgado-Andrade, J. L. Walsh, C.-P. Ma, M. E. Quenneville, J. E. Greene, J. P. Blakeslee, "The MASSIVE Survey - XVII. A Triaxial Orbit-based Determination of the Black Hole Mass and Intrinsic Shape of Elliptical Galaxy NGC 2693," Submitted to the Astrophysical Journal (2022). [link]
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]

## Teaching Experience

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| Graduate Student Instructor, Astro C12, *The Planets*, UC Berkeley | 2021, 2022, 2023 |
| Graduate Student Instructor, Astro 120, *Optical and Infrared Lab*, UC Berkeley | 2021, 2022 |
| Graduate Student Instructor, Astro C10, *Introduction to General Astronomy*, UC Berkeley | 2020 |
| Co-Instructor, University Studies 350, *Design Lab*, Colgate University | 2019, 2020 |
| Tutor, Physics 232, *Introduction to Mechanics*, Colgate University | 2017, 2020 |
| Tutor, Astronomy 101, *Introduction to Astronomy*, Colgate University | 2019 |
| Tutor, Astronomy 220, *Observational Astronomy*, Colgate University | 2018, 2019 |
| Tutor, Physics 131, *Atoms & Waves*, Colgate University | 2017, 2018, 2019 |

## Honors & Awards

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| NSF Graduate Research Fellowships Program (GRFP) Honorable Mention | 2022 |
| 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 |

## Talks & Posters

10. **J. Pilawa**, "Stellar Dynamical Mass Measurements and Intrinsic Shapes of MASSIVE Elliptical Galaxies," Texas A&M University, Department of Physics & Astronomy Extragalactic Group. [link to talk] February 2023
9. **J. Pilawa**, "Stellar Dynamical Mass Measurements of Massive Elliptical Galaxies," UC Berkeley Department of Astronomy Lunch Talk. [link to talk] March 2022
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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| *Letters to a Pre-Scientist* Mentor | 2021 – |
| 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 Phyiscs & Astronomy Department | 2018 – 2019 |

## Academic Service

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| Graduate Student Mentor of First-Year Graduate Student, UC Berkeley | April 2022 – |
| Panelist, Prospective Student Q&A Panel, UC Berkeley | March 2021, March 2022 |
| Incoming Graduate Student Visit Days Committee Member, UC Berkeley | March 2021, March 2022 |

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