

Casey Y. Lam

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Education

Ph.D. Astrophysics, University of California, Berkeley, 2023 (expected).

M.A. Astrophysics, University of California, Berkeley, 2019.

B.S. Mathematics and Physics, Massachusetts Institute of Technology, 2017.

Awards

UC Berkeley Outstanding Graduate Student Instructor (2019)

National Science Foundation Graduate Research Fellowship Program Honorable Mention (2017, 2019)

Teaching

Graduate Student Instructor, Introduction to Astrophysics I (UCB, Fall 2018)

Graduate Student Instructor, Introduction to Astrophysics II (UCB, Spring 2018)

Graduate Student Instructor, Introduction to Astronomy (UCB, Fall 2017)

Undergraduate Teaching Assistant, Electricity and Magnetism (MIT, Spring 2017)

Observing Experience

Keck Observatory (NIRC2 w/ LGS + NGS AO: 2.5 nights, OSIRIS Imager w/ LGS AO: 2.0 nights)

Lick Observatory, Kraft Observational Astronomy Workshop, 2017

Service

Graduate student mentor, Calbridge mentoring program (Fall 2019 - present)

Mentor, UCB Astronomy Graduate Student Mentoring Program (2 1st-year students, Fall 2019 - present)

UCB Astronomy prospective graduate student visit committee (Spring 2018)

Research Mentorship

Graduate student advisor for UC Berkeley undergraduates advised by Prof. Jessica Lu

S. Rose: Metallicity-dependent stellar evolution in PopSyCLE (Fall 19 - present)

A. Cheng: Microlensing maps with PopSyCLE (Spring 19 - present)

Outreach

Volunteer at:

department's monthly Astronomy Night (2017-18),
 university events (Cal Day 4/18, 4/19; Science@Cal 2/18),
 community events (Berkeley Sunday Streets 6/18; Discovery Day at AT&T Park 11/18, 11/17)
 outreach events (CalBridge Scholars Python Workshop 1/19)

Local organizer, Berkeley Public Library talk series (Summer and Fall 19)

Local co-organizer for CalBridge Scholars Python Workshop (11/17)

Posters and Presentations

Contributed talk, UC Berkeley Astronomy Thursday Lunch Talks, *Hunting for stellar-mass black holes with microlensing* (4/20, UC Berkeley¹)

Contributed talk, UC Berkeley Astronomy Thursday Lunch Talks, *TMT Science Forum 2019 Recap* (11/19, UC Berkeley)

Contributed talk, TMT Science Forum 2019, *Finding black holes and neutron stars with TMT* (11/19, Xiamen University)

Undergraduate talk, Berkeley Compass Lecture Series, *Finding Isolated Stellar Mass Black Holes with Microlensing* (10/19, UC Berkeley)

Talk, Lawrence Livermore National Lab, Physical and Life Sciences Seminar, *Finding isolated stellar mass black holes with microlensing* (10/19, LLNL)

Poster, Keck Science Meeting 2019, *PopSyCLE: A New Population Synthesis Code for Compact Object Microlensing Events* (9/19, UCLA)

Public talk, Berkeley Public Library, *How to see a black hole (with the Event Horizon Telescope)* (7/19, Berkeley Public Library Claremont)

Contributed talk, Science in our own Backyard: Exploring the Galaxy and the Local Group with WFIRST, *Finding isolated stellar mass black holes with WFIRST* (6/19, Caltech)

Contributed talk, 23rd International Microlensing Conference, *PopSyCLE: Population Synthesis for Compact object Lensing Events* (1/19, Flatiron CCA)

Contributed talk, UC Berkeley Astronomy Thursday Lunch Talks, *PopSyCLE: Population Synthesis for Compact object Lensing Events* (11/18, UC Berkeley)

Poster, Keck Science Meeting 2018, *Population Synthesis for Compact object Lensing Events (PopSyCLE): Calculating microlensing event rates from first principles* (9/18, MIT)

Contributed talk, American Physical Society April Meeting, *Primordial Black Holes from First Principles (Overview)* (1/17, Washington DC)

Talk, MIT Parents Weekend, Physics Department Reception, *Primordial Black Holes and Hybrid Inflation* (10/16, MIT)

¹Remote talk over Zoom

Publications

Refereed

5. Golovich, N., Dawson, W., Bartolić, F., **Lam, C. Y.**, Lu, J. R., Medford, M. S., Schneider, M. D., Chapline, G., Schlafly, E. S., Drlica-Wagner, A., and Pruett, K. “A Reanalysis of Public OGLE-III and IV Gravitational Microlensing Events.” Submitted to *ApJS*, May 2020.
4. Hosek Jr., M. W., Lu, J. R., **Lam, C. Y.**, Gautam, A. K., Lockhart, K. E., Kim, D., and Jia, S. “SPISEA: A Python-Based Simple Stellar Population Synthesis Code for Star Clusters.” Accepted to *AJ*, Jun 2020.
3. Medford, M. S., Lu, J. R., Dawson, W. A., **Lam, C. Y.**, Golovich, N. R., Schlafly, E. F., and Nugent, P. “Gravitational Microlensing Event Statistics for the Zwicky Transient Facility.” *ApJ* **897** 144, Jul 2020.
2. **Lam, C. Y.**, Lu, J. R., Hosek Jr., M. W., Dawson, W. A., and Golovich, N. R. “PopSyCLE: A New Population Synthesis Code for Compact Object Microlensing Events.” *ApJ* **889** 31, Jan 2020.
1. **Lam, C.** & Lauer J. “The Level-Set Flow of the Topologist’s Sine Curve is Smooth.” *J Geom Anal* **29**, 1019 - 1031, Apr 2019.

Unrefereed

4. Lu, J. R., **Lam, C.**, Dawson, W., Gaudi, B. S., Golovich, N., Medford, M., Abdurrahman, F., and Beaton, R. L. “Astro2020: From Stars to Compact Objects: The Initial-Final Mass Relation.” arXiv:1904.01773 [astro-ph.SR], Apr 2019.
3. Lu, J. R., **Lam, C. Y.**, Medford, M., Dawson, W., and Golovich, N. “Primordial Black Hole Microlensing: The Einstein Crossing Time Distribution.” *Res. Notes AAS* **3** 58, Apr 2019.
2. Bechtol, K., Drlica-Wagner, A., and 178 additional authors, incl. **Lam, C.** “Dark Matter Science in the Era of LSST.” Astro 2020 Science White Paper, arXiv:1903.04425 [astro-ph.CO], Mar 2019.
1. Bloomfield, J. K., Face, S. H. P., Guth, A. H., Kalia, S., **Lam, C.**, and Moss, Z. “Number Density of Peaks in a Chi-Squared Field.” arXiv:1612.03890 [math-ph], Dec 2016.

Skills

Software: Python, LaTeX, Bash, Git, Mathematica, Matlab

Language: Cantonese (basic conversational)