

# Hannah Klion

University of California, Berkeley  
Departments of Physics & Astronomy

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## RESEARCH INTERESTS

Computational radiation transport; Monte Carlo methods; high-performance computing; neutron star mergers and their optical counterparts; stellar evolution

## EDUCATION

<b>Ph.D. Physics</b> , University of California, Berkeley Advisors: Eliot Quataert and Daniel Kasen	Expected Aug 2021
<b>M.A. Physics</b> , University of California, Berkeley	May 2017
<b>B.S. Physics</b> , with Honor, California Institute of Technology Minor: Computer Science	June 2015

## RESEARCH POSITIONS

<b>Graduate Student Researcher</b> , UC Berkeley	2020 - present
<b>Physics Theory Graduate Fellow</b> , UC Berkeley	2019 - 2020
<b>Department of Energy Computational Science Graduate Fellow</b> , UC Berkeley	2015 - 2019
<b>DOE CSGF Practicum</b> , Oak Ridge National Laboratory Advisor: Bronson Messer	Summer 2017
<b>Robert L. Blinkenberg SURF</b> , UC Berkeley (via Caltech SURF program)	Summer 2014
<b>Robert L. Blinkenberg SURF</b> , Caltech	Summer 2013
<b>Undergraduate Researcher</b> , Theoretical Astrophysics Group, Caltech	2012-2015
<b>LIGO Summer Undergraduate Research Fellowship</b> , Caltech	Summer 2012

## TEACHING

Graduate Student Instructor, UC Berkeley Astronomy 160: Stellar Physics	Spring 2019
Teaching assistant, MESA Summer School, UC Santa Barbara	2018 & 2019

## AWARDS

Department of Energy Computational Science Graduate Fellowship	2015
UC Berkeley Physics Theory Fellowship	2015
UC Berkeley Hellman Graduate Award ( <i>declined</i> )	2015
Best Poster, APS West Coast Conference for Undergraduate Women in Physics	2014

## PUBLICATIONS ([ADS](#), [Google Scholar](#))

6. **H. Klion**, P. Duffell, D. Kasen, E. Quataert (2020) *The Effects of Jet-Ejecta Interaction on 2D Kilonova Light Curves*. Submitted to Monthly Notices of the Royal Astronomical Society. [arXiv:2012.08577](#).
5. P. Duffell, E. Quataert, D. Kasen, **H. Klion** (2018) *Jet Dynamics in Compact Object Mergers: GW170817 Likely Had a Successful Jet*. The Astrophysical Journal, Volume 866, Issue 1, Article ID 3.
4. **H. Klion** and E. Quataert (2017) *A Diagnostic for Localizing Red Giant Differential Rotation*. Monthly Notices of the Royal Astronomical Society Letters, Volume 464, Issue 1, p. L16
3. E. Quataert, R. Fernández, D. Kasen, **H. Klion**, B. Paxton (2016) *Super-Eddington Stellar Winds Driven by Near-Surface Energy Deposition*. Monthly Notices of the Royal Astronomical Society, Volume 548, Issue 2, p. 1214.
2. J. Fuller, **H. Klion**, E. Abdikamalov, C. D. Ott (2015), *Supernova seismology: gravitational wave signatures of rapidly rotating core collapse*. Monthly Notices of the Royal Astronomical Society, Volume 450, Issue 1, p. 414.
1. E. Abdikamalov, C. D. Ott, D. Radice, L. F. Roberts, R. Haas, C. Reisswig, P. Mösta, **H. Klion**, E. Schnetter (2015), *Neutrino-driven Turbulent Convection and Standing Accretion Shock Instability in Three-Dimensional Core-Collapse Supernovae*. The Astrophysical Journal, Volume 808, p. 70.

## PRESENTATIONS & POSTERS

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### Peer-Reviewed Poster

**H. Klion**, O. E. Bronson Messer, J. Austin Harris, Thomas Papatheodore (2017) *Optimizing Gravity and Nuclear Physics in FLASH for Exascale*. Extended abstract in *Proceedings of ACM SuperComputing 17, Denver Colorado, USA, November 2017 (SC'17)*. 3 pages.

### Invited Talks

DOE CSGF Program Review, Arlington, VA	July 2019
KITP, UC Santa Barbara, ZTF Theory Network December Meeting	Dec 2018
KITP, UC Santa Barbara, ZTF Theory Network Summer Meeting	Aug 2018

### Contributed Talks & Posters

UC Berkeley, Graduate Student and Postdoc Seminar	Dec 2019
Multi-Messenger Astrophysics in the Gravitational Wave Era, YITP, Kyoto	Sep 2019
Fifty-One Ergs, Raleigh, NC	May 2019
DOE CSGF Program Review (Poster), Arlington, VA	July 2018
Jerusalem Winter School in Theoretical Physics (Poster), Jerusalem	Dec 2017
UC Berkeley, Graduate Student and Postdoc Seminar	Nov 2017
UC Berkeley, Lunch Seminar	Oct 2017
DOE CSGF Program Review (Poster), Arlington, VA	July 2017
Massive Stars and their Explosive Outcomes (Poster), KITP, Santa Barbara, CA	Mar 2017
DOE CSGF Program Review (Poster), Arlington, VA	July 2016
APS April Meeting (Poster), Baltimore, MD	Apr 2015
APS West Coast Conference for Undergraduate Women in Physics (Poster), Berkeley, CA	Jan 2015
Theoretical Astrophysics in Southern California, San Diego, CA	Nov 2014
Caltech Summer Undergraduate Research Fellowship Seminar	Oct 2014
Theoretical Astrophysics in Southern California, Los Angeles, CA	Dec 2013
Caltech Summer Undergraduate Reserach Fellowship Seminar	Oct 2013
Theoretical Astrophysics in Southern California, Pasadena, CA	Nov 2012
LIGO Summer Undergraduate Research Fellowship Seminar, Livingston, LA	Aug 2012

## SERVICE

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Facilitator, UC Berkeley Astronomy Antiracism Book Club	2020
Co-organizer, UC Berkeley Astronomy arXiv Discussion	2017-2019
Mentor, UC Berkeley LAGSES Fellowship Workshop	Fall 2018
Mentor, UC Berkeley Compass Project	2016-2018

### UC Berkeley Astronomy Educational Outreach

Outreach Coordinator	2018-present
<i>Responsibilities: Develop new virtual reality and Spanish-language outreach programming. Lead planning and night-of operations for Astronomy Night. Coordinate K-12 school visits to the department. Assist in organizing yearly large (&gt;1000 visitor) outreach events.</i>	
Lead Organizer, Astronomy Night	2018-2020
<i>Monthly public talk and stargazing event. Typical attendance is 100-200 students and community members. On hiatus due to COVID-19.</i>	
Lead Organizer, UC Berkeley Astronomy Public Liaisons	2017-2018

## TECHNICAL SKILLS

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- Substantial experience with Python and C++
- Experience parallelizing applications with MPI and OpenMP
- Familiar with C, Fortran, Mathematica, and Unix systems