

Evan B. Bauer

Lawrence Livermore National Laboratory
7000 East Ave
Livermore, CA 94550

Email: bauer39@llnl.gov
Website: evbauer.github.io

Employment

2025–	Physicist	Lawrence Livermore National Laboratory
2020–2025	CfA & ITC Fellow	Center for Astrophysics Harvard & Smithsonian
2019–2020	Postdoctoral Scholar	Kavli Institute for Theoretical Physics, UC Santa Barbara

Education

2013–2019	Ph.D. Physics Advisor: Lars Bildsten	University of California Santa Barbara
2009–2013	B.A. University Scholar	Baylor University

Select Publications (* indicates advised student project)

For full list of publications, see [NASA ADS](#) and [Google Scholar](#). ORCID: [0000-0002-4791-6724](https://orcid.org/0000-0002-4791-6724).

- Aaron Dotter, **Evan B. Bauer**, Minjung Park, Charlie Conroy, Antonio P. Milone, Meridith Joyce, and Matteo Cantiello. *MESA Isochrones and Stellar Tracks (MIST). II. Models with α -enhanced Chemical Composition*. *ApJS*, 283:64(11pp), April 2026
- **Evan B. Bauer**, Aaron Dotter, Charlie Conroy, Tim Cunningham, Minjung Park, and Pier-Emmanuel Tremblay. *MESA Isochrones and Stellar Tracks (MIST) III. The White Dwarf Cooling Sequence*. *ApJS*, 283:41(10pp), March 2026
- *Abinaya Swaruba Rajamuthukumar, **Evan B. Bauer**, Stephen Justham, Rüdiger Pakmor, Selma E. de Mink, and Patrick Neunteufel. *Evolution of binaries containing a hot subdwarf and a white dwarf to double white dwarfs, and double detonation supernovae with hypervelocity runaway stars*. *A&A*, 704:A82(17pp), December 2025
- *Aakash Bhat, **Evan B. Bauer**, Rüdiger Pakmor, Ken J. Shen, Ilaria Caiazzo, Abinaya Swaruba Rajamuthukumar, Kareem El-Badry, and Wolfgang E. Kerzendorf. *Supernova Shocks Cannot Explain the Inflated State of Hypervelocity Runaways from White Dwarf Binaries*. *A&A*, 693:A114(15pp), January 2025
- *Kunal Deshmukh, **Evan B. Bauer**, Thomas Kupfer, and Matti Dorsch. *Modelling the AM CVn and Double Detonation Supernova Progenitor Binary System CD-30° 11223*. *MNRAS*, 527:2072(11pp), January 2024
- *Arianna Dwomoh and **Evan B. Bauer**. *Reinterpreting the Polluted White Dwarf SDSS J122859.93+104032.9 in Light of Thermohaline Mixing Models: More Polluting Material from a Larger Orbiting Solid Body*. *ApJ*, 952:95(6pp), August 2023
- **Evan B. Bauer**. *Carbon-Oxygen Phase Separation in Modules for Experiments in Stellar Astrophysics (MESA) White Dwarf Models*. *ApJ*, 950:115(12pp), June 2023

- Adam S. Jermyn, **Evan B. Bauer**, Josiah Schwab, R. Farmer, and 18 co-authors. *Modules for Experiments in Stellar Astrophysics (MESA): Time-Dependent Convection, Energy Conservation, Automatic Differentiation, and Infrastructure*. ApJS, 265:15(38pp), February 2023
- M. E. Caplan, **Evan B. Bauer**, and I. F. Freeman. *Accurate diffusion coefficients for dense white dwarf plasma mixtures*. MNRAS, 513:L52(5pp), June 2022
- Thomas Kupfer, **Evan B. Bauer**, Jan van Roestel, Eric C. Bellm, and 11 co-authors. *Discovery of a Double-detonation Thermonuclear Supernova Progenitor*. ApJL, 925:L12(10pp), February 2022
- **Evan B. Bauer**, Vedant Chandra, Ken J. Shen, and J. J. Hermes. *Masses of White Dwarf Binary Companions to Type Ia Supernovae Measured from Runaway Velocities*. ApJL, 923:L34(7pp), December 2021
- **Evan B. Bauer** and Thomas Kupfer. *Phases of Mass Transfer from Hot Subdwarfs to White Dwarf Companions and Their Photometric Properties*. ApJ, 922:245(13pp), December 2021
- Adam S. Jermyn, Josiah Schwab, **Evan Bauer**, F. X. Timmes, and Alexander Y. Potekhin. *Skye: A Differentiable Equation of State*. ApJ, 913:72(20pp), May 2021
- **Evan B. Bauer**, Josiah Schwab, Lars Bildsten, and Sihao Cheng. *Multi-gigayear White Dwarf Cooling Delays from Clustering-enhanced Gravitational Sedimentation*. ApJ, 902:93(18pp), October 2020
- Thomas Kupfer, **Evan B. Bauer**, Kevin B. Burdge, Jan van Roestel, and 29 co-authors. *A New Class of Roche Lobe-filling Hot Subdwarf Binaries*. ApJL, 898:L25(9pp), July 2020
- Thomas Kupfer, **Evan B. Bauer**, Thomas R. Marsh, Jan van Roestel, and 28 co-authors. *The First Ultracompact Roche Lobe-Filling Hot Subdwarf Binary*. ApJ, 891:45(15pp), March 2020
- **Evan B. Bauer**, Christopher J. White, and Lars Bildsten. *Remnants of Subdwarf Helium Donor Stars Ejected from Close Binaries with Thermonuclear Supernovae*. ApJ, 887:68(10pp), December 2019
- Thomas Kupfer, **Evan B. Bauer**, Kevin B. Burdge, Eric C. Bellm, and 21 co-authors. *A New Class of Large-amplitude Radial-mode Hot Subdwarf Pulsators*. ApJL, 878:L35(6pp), June 2019
- **Evan B. Bauer** and Lars Bildsten. *Polluted White Dwarfs: Mixing Regions and Diffusion Timescales*. ApJ, 872:96(12pp), February 2019
- **Evan B. Bauer** and Lars Bildsten. *Increases to Inferred Rates of Planetesimal Accretion due to Thermohaline Mixing in Metal-accreting White Dwarfs*. ApJL, 859:L19(6pp), June 2018
- Bill Paxton, Josiah Schwab, **Evan B. Bauer**, Lars Bildsten, and 9 co-authors. *Modules for Experiments in Stellar Astrophysics (MESA): Convective Boundaries, Element Diffusion, and Massive Star Explosions*. ApJS, 234:34(50pp), February 2018
- **Evan B. Bauer**, Josiah Schwab, and Lars Bildsten. *Electron Captures on ^{14}N as a Trigger for Helium Shell Detonations*. ApJ, 845:97(8pp), August 2017
- Bill Paxton, Pablo Marchant, Josiah Schwab, **Evan B. Bauer**, and 9 co-authors. *Modules for Experiments in Stellar Astrophysics (MESA): Binaries, Pulsations, and Explosions*. ApJS, 220:15(44pp), September 2015

Invited Workshops

Kavli Summer Program In Astrophysics 2023: The Lives, Deaths, and Afterlives of Interacting Stars
Max Planck Institute for Astrophysics, June–August 2023

White Dwarfs as Probes of the Evolution of Planets, Stars, the Milky Way, and the Expanding Universe
Kavli Institute for Theoretical Physics, November–December 2022

Seminars and Conference Talks

UC Berkeley Center for Integrated Planetary Science Seminar, April 2026
Lawrence Livermore National Lab Space Science Institute Seminar, December 2025
67th Annual Meeting of the APS Division of Plasma Physics, November 2025
Boston University Astrophysics Colloquium, September 2024
Current Challenges in the Physics of White Dwarf Stars. Santa Fe, NM. March 24–29, 2024
Stars with Lars Conference. Kavli Institute for Theoretical Physics. February 8-9, 2024
UC Berkeley TAC Seminar, October 2023
Stanford KIPAC Tea, October 2023
11th Meeting on Hot Subdwarfs and Related Objects. Armagh Observatory, UK. September 11–15, 2023
Kavli Summer Program In Astrophysics. Max Planck Institute for Astrophysics, Germany. July 2023
MIT Kavli Institute Seminar, May 2023
Harvard ITC Luncheon, April 2023
University of Arizona TAP Colloquium, February 2023
Texas Tech University Physics Colloquium, February 2023
Baylor University Physics Colloquium, December 2022
White Dwarfs from Physics to Astrophysics. Kavli Institute for Theoretical Physics. November 14–18, 2022
AM CVn 4.5, Armagh Observatory, UK. August 30–September 1, 2022
22nd European White Dwarf Workshop. University of Tübingen, Germany. August 15–19, 2022
Harvard & Smithsonian CfA Summer Lunch Seminar, July 2022
10th Meeting on Hot Subdwarfs and Related Objects. University of Liège, Belgium. June 13–17, 2022
Harvard ITC Luncheon, March 2022
UMass Dartmouth Physics Seminar, December 2021
sdOB9.5, Breaking News. University of Potsdam, Germany. August 16–18, 2021
AAS Journal Author Series. youtu.be/aAd2fQMJ9No, July 2021
University of Warwick Astronomy Seminar, April 2021
White Dwarfs from Physics to Astrophysics. Kavli Institute for Theoretical Physics. March 29–30, 2021
Harvard ITC Colloquium, November 2020
UCLA Astronomy & Astrophysics Tuesday Lunch, March 2020
Astronomy on Tap Santa Barbara, February 2020
Los Alamos National Lab Astrophysics Seminar, January 2020
IAU Symposium 357: White Dwarfs as Probes of Fundamental Physics. Hilo, HI. October 21–25, 2019
Stars in the Run II. University of Potsdam, Germany. August 25–30, 2019
The Beginnings and Ends of Double White Dwarfs. Copenhagen, Denmark. July 1–5, 2019

9th Meeting on Hot Subdwarfs and Related Objects. Hendaye, France. June 23–28, 2019

Institute for Advanced Study / Princeton University Bahcall Lunch, December 2018

UC Berkeley TAC Explosive Astrophysics Lunch, October 2018

Caltech TAPIR Seminar, October 2018

Harvard & Smithsonian CfA Stars and Planets Seminar, October 2018

Cambridge DAMTP Astrophysics Seminar, October 2018

21st European White Dwarf Workshop. University of Texas, Austin, TX. July 23–27, 2018

UC Santa Cruz FLASH Seminar, June 2018

20th European White Dwarf Workshop. University of Warwick, UK. July 25–29, 2016

Teaching and Mentoring Experience

Research Mentor for Undergraduate, Master's, and PhD Students:

Aakash Bhat (PhD Student, University of Potsdam)

Shelley Cheng (PhD Student, Harvard University)

Ebraheem Farag (PhD Student, Arizona State University)

Abinaya Swaruba Rajamuthukumar (PhD Student, Max Planck Institute for Astrophysics)

Kunal Deshmukh (Master's Student, Texas Tech University)

Arianna Dwomoh (Undergraduate Student, Duke University)

Teaching Assistant, UC Santa Barbara

PHYS CS 34, Electromagnetism (College of Creative Studies)

PHYS CS 35, Electromagnetism and Optics (College of Creative Studies)

PHYS CS 36, Quantum Physics (College of Creative Studies)

PHYS 43/RGST 43, Origins: A Dialogue Between Scientists and Humanists

PHYS 132, Stellar Structure and Evolution

PHYS 232, Stellar Structure and Evolution (Graduate)

Lab Instructor, UC Santa Barbara

PHYS 3L, Physics Laboratory

PHYS 6AL and 6BL, Introductory Experimental Physics

Professional Service

Journal Referee. 2016–

Astronomy & Astrophysics, Astronomy and Computing, The Astrophysical Journal, The Astrophysical Journal Letters, Monthly Notices of the Royal Astronomical Society, Nature, Nature Astronomy, Physical Review E

Seminar Organizer

Harvard ITC Luncheon. 2023–2024

Harvard & Smithsonian CfA Seminar Series. 2021–2022

Subject-Matter Expert for Grant and Fellowship Reviews

Selection committee member for a competitive prize fellowship in astronomy. 2024

NSF ad hoc reviewer. 2024

NASA peer review panel. 2022

Open-Source Software Contributor: Modules for Experiments in Stellar Astrophysics (MESA)

github.com/MESAHub/mesa, docs.mesastar.org

MESA Developer Team Member. 2016–

MESA Developer Team meeting coordinator and leader. 2022–2024

MESA Summer School, Teaching Assistant and Organizer. UCSB, Santa Barbara, CA. 2015–2022

References (contact information available upon request)

Lars Bildsten, Kavli Institute for Theoretical Physics, UC Santa Barbara

Charlie Conroy, Harvard University

Warren Brown, Smithsonian Astrophysical Observatory

Thomas Kupfer, University of Hamburg