

WYNN V. JACOBSON-GALÁN

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EDUCATION

University of California Berkeley, <i>Ph.D</i> , Astrophysics	May 2024 (<i>expected</i>)
Advisor: Prof. Raffaella Margutti	
University of California Berkeley, <i>Masters of Arts</i> , Astrophysics	Dec. 2022
Advisor: Prof. Raffaella Margutti	
Northwestern University, <i>Masters of Science</i> , Astronomy	June 2021
Advisor: Prof. Raffaella Margutti	
University of California Santa Cruz, <i>Bachelor of Science</i> , Physics (Astrophysics)	June 2018
Advisor: Prof. Ryan Foley	Cum Laude
Santa Monica Community College	June 2016

RESEARCH INTERESTS

red supergiant mass-loss, flash spectroscopy, calcium-rich supernovae, big data management

TELESCOPE PROPOSALS

Accepted Programs as Principal Investigator:

- *Hubble Space Telescope*: 6 proposals, 67 orbits (Cycles 27-31)
- Southern Astrophysical Research Telescope: ToO program (2022B, 2023B)
- Lick Observatory: ToO program; 2022A - Present
- Gemini Observatory: Large and Long Program (150 hrs, 2021B - 2024A); Rapid ToO Program (2023B-present)
- Very Large Array: Priority A, 2 Triggers (2021B, 2023A)
- *XMM-Newton*: 2 Triggers (2021A - 2023B)
- *Neil Gehrels Swift Observatory*: >125 Accepted ToO Triggers (>700ks)

OBSERVING EXPERIENCE

Nickel 1-m Telescope	Lick Observatory, >30 nights
Shane 3-m Telescope	KAST Double Spectrograph, 8 nights
Keck I/II Telescopes	LRIS/DEIMOS, 5 nights
SOAR Telescope	Goodman Spectrograph, ToO Interrupts

AWARDS, HONORS, POSITIONS

NSF Graduate Research Fellowship: UC Berkeley (2019-2024)
MPS Scholars Summer Grant: Graduate Student Mentor, UC Berkeley (June-August 2023)
Certificate of Teaching and Learning in Higher Education: UC Berkeley (April 2023)
Top 3 Most Downloaded Journal Articles of 2022: AAS Publishing, ([Jacobson-Galan+ 2022a](#))
Visiting Researcher: Max Planck Institute for Astrophysics (May-June 2022)
IAU Travel Grant: Symposium No. 361 (May 2022)
Graduate Division Conference Travel Grant: UC Berkeley (Winter, Spring 2023)
IDEAS Fellowship & Integrated Data Science Certificate: Northwestern University (2019-2021)
Data Science Fellowship: Northwestern University (2019-2020)
Chambliss Metal: American Astronomical Society 233rd Meeting (January 2019)
Dean's & Chancellor's Awards: UC Santa Cruz (June 2018)
Koret Undergraduate Research Scholarship: UC Santa Cruz (January 2018)
Major Honors: UC Santa Cruz Physics graduation (June 2018)
Dean's Honor List: UC Santa Cruz
Great Lakes National Scholarship Program Award (2016-2017)
UC Regent's Scholar: UC Santa Cruz (2016-2018)
Dean's Honor List: Santa Monica College (2015-2016)

PRESENTATIONS

Invited Talks:

- CfA Seminar, Harvard University, Oct. 2023
- Lunch Seminar, Carnegie Observatories, Oct. 2023
- Theory Group Meeting, Northwestern/CIERA, April 2023
- iTelescope Webinar Series, Feb. 2023
- Extreme Objects Seminar, Stockholm University, June 2022
- Compass Talk Series, UC Berkeley, March 2022
- Astronomy Colloquium, University of British Columbia, Feb. 2022
- “Big Boom” Science Discussion, U. of Arizona, Feb. 2022
- Transient Group Science Discussion, UCSC, Jan. 2022
- Supernovae & Dust Tele-talk Series, April 2021
- High-Energy Transients Group Meeting, Nat. Auto. U. of Mexico, August 2020
- SN/SNR/PWN Group Meeting, Harvard University, July 2020

Contributed Talks:

- Stars & Plasma Astrophysics Meeting, Center for Computational Astrophysics, Oct. 2023
- FLASH Seminar, NOIRLab, Oct. 2023
- “Big Boom” Science Discussion, U. of Arizona, Oct. 2023
- Tea Talk Series, Caltech, Oct. 2023
- TSST Talk Series, STSci, Sept. 2023
- High Energy Astrophysics Division Meeting, March 2023
- Interacting Supernova Workshop, MIAPP, Feb. 2023
- Lunch Talk Series, UC Berkeley, Oct. 2021, March 2022, Nov. 2022
- Spoken WERRD+ Transient Conference, Oct. 2022
- BOOM Transient Conference, U. of Illinois, July 2022
- Friday Science Discussion, DARK / Copenhagen University, June 2022
- IAUS 361 Massive Stars Near and Far, May 2022
- SuperVirtual Science Meeting, Nov. 2021
- Keck Science Meeting, Sept. 2021
- KITP White Dwarfs from Physics to Astrophysics, Nov. 2022
- Exploring the Transient Universe with the Nancy Grace Roman Space Telescope, Feb. 2022
- Chandra Frontiers in Time-Domain Science, October 2020
- Spoken-WERRD Transient Conference, March 2021
- AAS High-Energy Astrophysics Division Virtual Seminar Series, August 2020
- American Astronomical Society Meeting 235, Honolulu, HI, January 2020
- Midwest Transient Conference, Ohio State University, September 2019
- Hotwiring the Transient Universe Conference, Northwestern University, August 2019
- Transient Lunch Talk, UC Santa Cruz, February 2018
- Scientific Communication Seminar, UC Santa Cruz, March 2018

Posters:

- Keck Science Meeting, Sept. 2020
- American Astronomical Society 233rd Meeting, Jan. 2019
- UCSC Koret Research Symposium, June 2018

SELECTED PRESS

- X-ray emission from calcium-rich transient SN 2019ehk ([Jacobson-Galan+ 2020b](#)):
 - [CNN](#); [Keck Observatory](#); [NOIRLab](#); [Northwestern U.](#); [UC Santa Cruz](#); [Futurism](#); [Inverse](#); [NASA](#)
- Precursor emission from supernova 2020tlf ([Jacobson-Galan+ 2022a](#)):
 - [CNN](#); [Keck](#); [NU](#); [UCSC](#); [UCB](#); [Forbes](#); [IFL Sci.](#); [CBS](#); [Mashable](#); [SciTech](#); [Space.com](#); [Astronomy Magazine](#)
 - “Supernova” Documentary Feature for NHK Japan
- SN 2023ixf, the closest supernova in a decade ([Jacobson-Galan+ 2023a](#)):
 - [Scientific American](#); [UC Berkeley](#)

TEACHING EXPERIENCE

- ASTRO 10, Intro. to General Astronomy, UC Berkeley (June - August 2023) [Instructor of record]
- ASTRO 160, Stellar Physics, UC Berkeley (Aug. - Dec. 2022) [Graduate Student Instructor]
- ASTRO C10, Intro. to General Astronomy, UC Berkeley (Jan. - May 2022) [Graduate Student Instructor]
- REACH Summer Program, CIERA/Northwestern (June - August 2020, 2021) [Instructor]

MENTORSHIP

- Padma Venkatraman, UC Berkeley undergraduate (Oct. 2021 - Present)
 - Project: Construction of python code to automatically fit shock cooling emission in young SNe
 - [Jacobson-Galan, Venkatraman, et al. \(2022b\)](#), *ApJ*, 932, 58
 - [Venkatraman, Jacobson-Galan et al. \(2023\)](#), *RNAAS*, in prep
- Sebastian Gonzalez, UC Berkeley undergraduate (Oct. 2021 - Present)
 - Project: Finding and modeling precursors to core-collapse SNe
 - Publications: [Jacobson-Galan, Gonzalez, Patel, et al. \(2023c\)](#), in prep.
- Shreyas Patel, UC Berkeley undergraduate (Oct. 2021 - Present)
 - Project: Finding and modeling precursors to type Ia SNe
 - Publications: [Jacobson-Galan, Gonzalez, Patel, et al. \(2023c\)](#), in prep.

OUTREACH, SERVICE

Be A Scientist Program: Weekly volunteer in Berkeley middle schools (Spring/Fall 2022)
UCB Astro Night: Invited speaker, volunteer (Spring/Fall 2022)
UCB SCIENCE-PALOOZA: Astronomy Dept. Volunteer, Lawrence Hall of Science (April 2022)
Bay Area Science Festival Discovery Day: Astronomy Dept. Volunteer, Oracle Park (April 2022)
Brains On Podcast: Guest on child science podcast (“[How are we related to stars?](#)” ; March 2022)
Referee: *ApJ*, *MNRAS*, *Science Bulletin*
Astrobites: Writer for the graduate student run publication *Astrobites* (Oct. 2019 - Feb. 2022)
REACH Summer Program: Mentor/Speaker, CIERA/Northwestern (July-August 2020 & 2021)
Data Science for Public Good Conference: Co-Organizer/Speaker, CIERA/Northwestern (July 2021)
Social Justice Coordinating Committee: Member, CIERA/Northwestern (May. 2020 - May 2021)
Adler Planetarium: Volunteer and presenter in the Sky Visualization Lab (Jan. 2020 - Jan. 2021)
Transient Lunch: Co-organizer of weekly talks (Nov. 2018 - May 2019)
American Astronomical Society Ambassador: (Nov. 2018 - Nov. 2019)
UC Santa Cruz Physics Mentorship Program: Mentor of two physics students (Oct. 2018 - May 2019)

REFERENCES

- Prof. Raffaella Margutti, UC Berkeley (rmargutti@berkeley.edu)
- Prof. Ryan Foley, UC Santa Cruz (foley@ucsc.edu)
- Dr. Luc Dessart, Institut d’Astrophysique de Paris (dessart@iap.fr)
- Prof. Ashley Villar, Harvard University (ashleyvillar@cfa.harvard.edu)

PUBLICATIONS

9 First-author, 3 Second-author, 18 Nth-author (h-index: 15, Citations: 629)

First-author:

1. *Final Moments II: Observational Properties and Physical Modeling of CSM-Interacting Type II Supernovae*
Jacobson-Galán, W.V., Dessart, L., Margutti, R., et al. (2023b), ApJ, to be submitted Nov 3.
2. *SN 2023ixf in Messier 101: Photo-ionization of Dense, Close-in Circumstellar Material in a Nearby Type II Supernova* [Citations: 33]
Jacobson-Galán, W.V., Dessart, L., Margutti, R., et al. (2023a), ApJL, 954 L42 ([arXiv](#))
3. *The Circumstellar Environments of Double-peaked, Ca-strong SNe 2021gno and 2021inl* [Citations: 14]
Jacobson-Galán, W.V., Venkatraman, P., Margutti, R., et al. (2022b), ApJ, 932, 58 ([arXiv](#))
4. *Final Moments I: Precursor Emission, Envelope Inflation, and Enhanced Mass loss Preceding the Luminous Type II Supernova 2020tlf* [Citations: 63]
Jacobson-Galán, W.V., Dessart, L., Jones, D. J., et al. (2022a), ApJ, 924, 16 ([arXiv](#))
5. *Late-time Observations of Calcium-Rich Transient SN 2019ehk Reveal a Pure Radioactive Decay Power Source* [Citations: 13]
Jacobson-Galán, W.V., Margutti, R., Kilpatrick, C.D., et al. (2021a), ApJL, 908, 2 ([arXiv](#))
6. *SN 2019ehk: A Double-peaked Ca-rich Transient with Luminous X-Ray Emission and Shock-ionized Spectral Features* [Citations: 49]
Jacobson-Galán, W.V., Margutti, R., Kilpatrick, C.D., et al. (2020b), ApJ, 898, 2 ([arXiv](#))
7. *Ca hnk: Calcium-rich Transient SN 2016hnk from the Helium Shell Detonation of a Sub-Chandrasekhar White Dwarf* [Citations: 21]
Jacobson-Galán, W.V., Polin, A., Foley, R.J., et al. (2020a), ApJ, 896, 2 ([arXiv](#))
8. *Detection of Circumstellar Helium in Type Ia_x Progenitor Systems* [Citations: 21]
Jacobson-Galán, W.V., Foley, R.J., Schwab, J., et al. (2019), MNRAS, 487, 2538 ([arXiv](#))
9. *Constraining Type Ia Supernova Progenitor Scenarios with Extremely Late-time Photometry of Supernova SN 2013aa* [Citations: 18]
Jacobson-Galán, W.V., Dimitriadis, G., Foley, R.J., et al. (2018), ApJ, 857, 88 ([arXiv](#))

Second-author:

1. *Using Spectral Modeling to Break Light Curve Degeneracies of Type II Supernovae Interacting with Circumstellar Material*
Dessart, L. & **Jacobson-Galán, W.V.** (2023b), A&A, accepted. ([arXiv](#))
2. *The Early Phases of Supernova 2020pni: Shock-Ionization of the N-Enriched Circumstellar Material*
Terreran, G., **Jacobson-Galán, W.V.**, Groh, J. et al. (2022), ApJ, 926, 2. ([arXiv](#))
3. *Mean Motion Resonance in Radial Velocity Systems – The Case of HD 200964*
Rosenthal, M.M., **Jacobson-Galán, W.V.**, Nelson, B. et al. (2019), ApJ, 158, 4. ([arXiv](#))

Nth-author:

1. *SN 2023ixf in Messier 101: A Variable Red Supergiant as the Progenitor Candidate to a Type II Supernova*
Kilpatrick, C., Foley, R., **Jacobson-Galán, W.V.** et al. (2023), ApJL, 952, 1 ([arXiv](#))
2. *YSE-PZ: A Transient Survey Management Platform that Empowers the Human-in-the-Loop*
Coulter, D., [et al. including **Jacobson-Galán, W.V.**] et al. (2023), PASP, submitted ([arXiv](#))
3. *Scary Barbie: An Extremely Energetic, Long-Duration Tidal Disruption Event Candidate Without a Detected Host Galaxy at $z = 0.995$*
Subrayan, B., [et al. including **Jacobson-Galán, W.V.**] et al. (2023), ApJL, submitted ([arXiv](#))

4. *The Young Supernova Experiment Data Release 1 (YSE DR1): Light Curves and Photometric Classification of 1975 Supernovae*
Aleo, P., [et al. including **Jacobson-Galán, W.V.**] et al. (2022), ApJS, submitted ([arXiv](#))
5. *SN 2022ann: A type Icn supernova from a dwarf galaxy that reveals helium in its circumstellar environment*
Davis, K., [et al. including **Jacobson-Galán, W.V.**] et al. (2022), MNRAS, submitted ([arXiv](#))
6. *Evidence for Extended Hydrogen-Poor CSM in the Three-Peaked Light Curve of Stripped Envelope Ib Supernova*
Zenati, Y., [et al. including **Jacobson-Galán, W.V.**] et al. (2022), ApJ, submitted ([arXiv](#))
7. *The Origins of Calcium-rich Supernovae From Disruptions of CO White Dwarfs by Hybrid He-CO White Dwarfs*
Zenati, Y., [et al. including **Jacobson-Galán, W.V.**] et al. (2023), ApJ, 944, 1 ([arXiv](#))
8. *Seven Years of Coordinated Chandra-NuSTAR Observations of SN 2014C Unfold the Extreme Mass-loss History of Its Stellar Progenitor*
Brethauer, D., [et al. including **Jacobson-Galán, W.V.**] et al. (2022), ApJ, 939, 2 ([arXiv](#))
9. *Radio Analysis of SN2004C Reveals an Unusual CSM Density Profile as a Harbinger of Core Collapse*
DeMarchi, L., [et al. including **Jacobson-Galán, W.V.**] et al. (2022), ApJ, 938, 1 ([arXiv](#))
10. *Progenitor and close-in circumstellar medium of type II supernova 2020fqv from high-cadence photometry and ultra-rapid UV spectroscopy*
Tinyanont, S., [et al. including **Jacobson-Galán, W.V.**] et al. (2022), MNRAS, 512, 2 ([arXiv](#))
11. *Physical Properties of the Host Galaxies of Ca-rich Transients*
Dong, Y., [et al. including **Jacobson-Galán, W.V.**] et al. (2022), ApJ, 927, 2 ([arXiv](#))
12. *A Carbon/Oxygen-dominated Atmosphere Days after Explosion for the “Super-Chandrasekhar” Type Ia SN 2020esm*
Dimitriadis, G., [et al. including **Jacobson-Galán, W.V.**] et al. (2022), ApJ, 927, 1 ([arXiv](#))
13. *Radio and X-Ray Observations of the Luminous Fast Blue Optical Transient AT 2020xnd*
Bright, J., [et al. including **Jacobson-Galán, W.V.**] et al. (2022), ApJ, 926, 2 ([arXiv](#))
14. *An Early-time Optical and Ultraviolet Excess in the Type-Ic SN 2020oi*
Gagliano, A., [et al. including **Jacobson-Galán, W.V.**] et al. (2022), ApJ, 924, 2 ([arXiv](#))
15. *Constraints on the sub-pc environment of the nearby Type Iax SN 2014dt from deep X-ray and radio observations*
Stauffer, C., [et al. including **Jacobson-Galán, W.V.**] et al. (2021), MNRAS, 505, 1 ([arXiv](#))
16. *A cool and inflated progenitor candidate for the Type Ib supernova 2019yvr at 2.6 yr before explosion*
Kilpatrick, C., [et al. including **Jacobson-Galán, W.V.**] et al. (2021), MNRAS, 504, 2 ([arXiv](#))
17. *The Young Supernova Experiment: Survey Goals, Overview, and Operations*
Jones, D.J., [et al. including **Jacobson-Galán, W.V.**] et al. (2021), ApJ, 908, 2. ([arXiv](#))
18. *A Potential Progenitor for the Type Ic Supernova 2017ein*
Kilpatrick, C.D., Takaro, T., [et al. including **Jacobson-Galán, W.V.**] (2018) MNRAS, 480, 2072 ([arXiv](#))