
JILLIAN CHIN RASTINEJAD
NASA EINSTEIN FELLOW

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RESEARCH INTERESTS	Time-domain and multi-messenger astrophysics; kilonovae; Gamma-ray Bursts; Fast X-ray Transients; <i>r</i> -process nucleosynthesis; extreme supernovae; supernova shock breakout; relativistic jets; time-domain surveys; rapid-response follow-up; UV, optical, infrared, radio observations; optical spectroscopy	
EDUCATION	Ph.D. , Astronomy, Northwestern University, USA M.S. , Astronomy, Northwestern University, USA B.A. , Physics, Human Rights, <i>cum laude</i> , University of Connecticut, USA Minors in Astrophysics, Mathematics	2025 2021 2019
HONORS & AWARDS	Einstein Fellowship , NASA Hubble Fellowship Program Neil Gehrels Prize Postdoctoral Fellowship , UMD-NASA Goddard Presidential Fellowship , Northwestern University <i>· Northwestern's most prestigious fellowship awarded to graduate students.</i> Graduate Student Visitor , Gemini Observatory Honorable Mention , NSF Graduate Research Fellowship Data Science Initiative Fellowship , Northwestern University	2025 2025 2024 2024 2021 2019
BIBLIOMETRICS	<i>All papers:</i> 38 <i>Citations:</i> >2100 ADS Library (also listed at end of C.V.) <i>Lead author:</i> 7 <i>Citations:</i> >600	
COLLABORATIONS	Rubin-LSST Transient and Variable Star Science Collaboration <i>Member since 2025.</i> Zwicky Transient Facility (ZTF) Collaboration <i>Member of the multi-messenger astrophysics working group since 2025, focused on optical follow-up to Fast X-ray Transients and poorly-localized short GRBs.</i> Searches After Gravitational Waves Using Arizona Observatories (SAGUARO) <i>Developed infrastructure to search for and vet potential electromagnetic counterparts to gravitational wave-detect neutron star mergers, including lead development of the public Kilonova Candidate Vetting package (2023; Github, Zenodo).</i> Tool for Rapid Object Vetting and Examination (TROVE) <i>Member of the development team for a community tool to vet electromagnetic counterparts to multi-messenger events and prioritize follow-up resources.</i>	
TELESCOPE TIME AWARDED AS P.I.	★ I have been awarded over 28 observing nights and support funding of \$81,455 across 21 proposals as Principal Investigator. Very Large Array - 8 hours in 1 program. <i>"Uncovering the Power Sources of Nearby Fast X-ray Transients" - 2026B</i>	

Hubble Space Telescope - 14 orbits over 2 programs.

- *"Identifying a New Source of r-Process Nucleosynthesis with HST"* - 12 orbits, Cycle 31-33, Support Funding: \$56,869 USD
- *"Solidifying the Origin of a Possible Kilonova at 350 Mpc"* - 2 orbits, Cycle 29, Support Funding: \$24,586 USD

Gemini Observatory - 66 hours over 8 programs.

- *"Mapping the Progenitors of Fast X-ray Transients"* - 9 hours, 2026A
- *"Gemini Observations of a Short GRB Kilonova"* - 10 hours, 2025B
- *"Investigating the Sites of R-Process Nucleosynthesis with Strategic Follow-Up of a Nearby Long Gamma-Ray Burst"* - 40 hours across 2023A, 2024A, 2024B, 2025A
- *"Observing a Once-in-a-Millennium Gamma-ray Burst with Gemini"* - Director's Discretionary Time, 4 hours, 2022B
- *"Probing the Properties of Neutron Star Mergers: Rapid Observations of Short Gamma-ray Bursts"* - 3 hours, 2022B

W. M. Keck Observatory - 12 hours over 4 programs (2 NASA TAC, 2 Northwestern/CIERA TAC).

- *"ToO Observations of a GRB Kilonova"* - 6 hours over 2026A-2026B (NASA)
- *"Follow up of Explosive Transients with Keck Target-of-Opportunity Observations"* - 6 hours over 2024B-2025A (Northwestern/CIERA)

Lowell Discovery Telescope - 18 hours through UMD.

- *"ToO Observations of Relativistic Transients"* - 18 hours over 2026A-2026B

MMT Observatory - 14 nights through Northwestern/CIERA.

- *"Rapid Observations of Gamma-Ray Bursts and Gravitational Wave Events"* - 14 nights over 2021B-2025A

SELECTED
TELESCOPE TIME
AWARDED AS
CO-I.

James Webb Space Telescope

- P.I.: B. Gompertz. "Identifying the progenitors of an unbiased sample of long gamma-ray bursts" - 65 hours Cycles 5-7
- P.I.: A. Levan. "Heavy elements following the giant flare from the magnetar SGR 1806-20" - 5 hours, Cycle 5
- P.I.: R. Chornock. "Infrared Spectroscopy of a Neutron Star Merger with JWST" - 23 hours, Cycle 2
- P.I.: A. Levan, Director's Discretionary Time. "Revealing the nature of the exceptional GRB 230307A: nearby nucleosynthesis or a primordial explosion?" - 5 hours, Cycle 1
- P.I.: A. Levan, Director's Discretionary Time. "The late time spectrum of a kilonova in the exceptionally bright GRB 230307A" - 5 hours, Cycle 1
- P.I.: E. Berger. "Fine-Tuned Search for Kilonova Emission in a Short Gamma-Ray Burst: Implications for Gravitational Wave Sources and r- Process Nucleosynthesis" - 12 hours, Cycle 1
- P.I.: A. Levan, Director's Discretionary Time. "Heavy element formation in the brightest gamma-ray burst of all time" - 2 hours, Cycle 1

Chandra Observatory, Hubble Space Telescope, Very Large Array

- PIs: Campana, Fong, Haggard & Margutti *"Community Discovery Program: panchromatic CXO/VLA/HST observations of NS mergers"* - (470 ks Chandra, 33 HST orbits, 31 VLA hours), Chandra Cycle 28

Gemini Observatory

- PI: Fong *"Diversifying the Population of Short Gamma-ray Burst Afterglows with Gemini"* - 76 hours, 2023B-2025A

INVITED TALKS

★ **I have been invited to give 19 talks, including 3 colloquia and 9 conference review talks. I have given 20 contributed presentations (not shown).**

- Review Talk - ERC HEAVYMETAL VI Consortium Meeting 6/2026
Kinlochard, UK. *"Observing the Origins of R-Process Elements with GRBs"*
- Colloquium - University of California, San Diego 4/2026
San Diego, USA. *"Constraining the Explosive Origins of r-Process Elements"*
- Review Talk - RAPID-Response: Hot-wiring the Time-Domain Universe 3/2026
Pasadena, USA. *"Catching Kilonovae in the Era of Rubin and Roman"*
- Seminar - Princeton Gravity Initiative 2/2026
Princeton, USA. *"Where is the Second Multi-Messenger Merger? Insights from GRB, Kilonova & Afterglow Observations"*
- Review Talk - Kilonova Session, European Astro. Soc. (EAS) Meeting 6/2025
Cork, Ireland. *"Kilonova Detections from GRBs"*
- Review Talk - Fast X-ray Transient Session, EAS Meeting 6/2025
Cork, Ireland. *"The connection between Fast X-ray Transients and Supernovae"*
- Review Talk - HEAD Special Session, 245th AAS 1/2025
National Harbor, USA. *"The Diversity of EM Counterparts to Neutron Star Mergers: Lessons Learned from Observations of GRBs, Kilonovae and Afterglows"*
- Seminar - Berkeley Theoretical Astrophysics Center 9/2024
Berkeley, USA. *"Observing the origins of R-process elements with GRBs"*
- Seminar - CfA/Harvard ITC Luncheon 9/2024
Cambridge, USA. *"Observing the origins of R-process elements with GRBs"*
- Review Talk - "Fast-Evolving Extragalactic Transients" Conference 2/2024
Bormio, Italy. *"Long/Short and Short/Long "Crossover" GRBs"*
- Colloquium - University of Maryland, College Park 11/2023
College Park, USA. *"Revealing the origins of the Universe's heavy metals with observations of GRBs"*
- Review Talk - "Celebrating 50 years of GRBs" Conference 8/2023
Warrenton, USA. *"Observational Searches for Kilonovae"*
- Colloquium - Illinois State University 3/2023
Normal, USA. *"Revealing the origins of the Universe's heavy metals with observations of GRBs"*
- Seminar, CfA/Harvard High Energy Astrophysics 2/2023
Cambridge, USA. *"Gamma-ray Bursts as signposts of heavy element formation"*
- Review Talk, Roman Obs. Transient Session, 241st AAS 1/2023
Seattle, USA. *"Observing the Diversity of NS Merger Counterparts with Roman"*
- Review Talk - Gemini Obs. Science Session, 241st AAS 1/2023
Seattle, USA. *"Observing the Diversity of NS Merger Counterparts with Gemini"*
- Seminar - Explosive Astronomy Series, UC Berkeley 5/2022
Virtual. *"The paradigm-shifting GRB 211211A: A Long GRB from a NS Merger"*
- Talk - Astronomy Journal Club, University of Chicago 5/2022
Virtual. *"The paradigm-shifting GRB 211211A: A Long GRB from a NS Merger"*
- Seminar - SPIMAX Seminar Series, Oxford University 11/2021
Virtual. *"Needles in the Haystack: Optimizing Searches for Kilonovae."*

STUDENTS ADVISED	David Morejon, UMD Undergraduate 2025-present “Testing Shock Cooling and Free Neutron Decay in GRB Kilonovae” Awarded UMD Department of Astronomy Summer Reserach Funding (2026) Lucas Kritz, Northwestern Undergraduate 2024-2026 Co-mentored with Wen-fai Fong “Off-axis Afterglow Predictions for Neutron Star Mergers with Afterglowpy” <i>Astronomy PhD at McGill University, 2026–</i> Jake M., High school student 2023 “Comparing Afterglow and Supernova Properties of Four GRB Events” León García, High school student 2021 - 2022 “Simulating Off-Axis Short GRB Afterglows to Inform GW Follow-Up” Finalist, International Science and Engineering Fair 2022 Sophie L., High school student 2021 “Estimating the Ejecta Masses of Short GRB Kilonova Candidates”
TEACHING	Teaching Assistant, Dept. of Physics & Astronomy, Northwestern University <i>Planned and led weekly discussion to review lecture material and address questions.</i> Physics 135: General Physics, Electricity & Magnetism Fall 2020 Astronomy 120: Highlights of Astronomy Fall 2021
PROFESSIONAL SERVICE	Co-organizer, weekly UMD High Energy and Transient Seminar Series, 2025 – present Time Allocation Committee Member, NSF Panelist, NASA Proposal Review Reviewer, JWST DD Proposals Referee for AAS Journals, MNRAS Short GRB Topical Coordinator, 2024 <i>Swift</i> NASA Senior Review
PRESS	★ My work has been highlighted in 5 distinct press releases. I was also spotlighted in a NASA Universe Twitter takeover post with >125,000 views in 2022 and provided commentary on a wandering black hole for National Public Radio's <i>All Things Considered</i> and <i>Short Wave</i> in 2026. Selected articles on Rastinejad et al. 2026: · NRAO, ‘NSF NRAO radio observations help rule out a relativistic jet in rare stellar explosion’ · Discover Magazine, ‘A Rare Glimpse of a Supernova’s First Light Captured 500 Million Light Years Away’ Selected articles on Rastinejad et al. 2025b: · NOIRLab, ‘International Gemini Observatory and SOAR Discover Surprising Link Between Fast X-ray Transients and the Explosive Death of Massive Stars’ · Keck Observatory, ‘Mysterious cosmic explosion is traced to a massive stellar explosions’ Selected articles on Rastinejad et al. 2022b (94 total mentions, total reach 13.9 million): · Quanta, “Extra-Long Blasts Challenge Our Theories of Cosmic Cataclysms” · BBC, “Remarkable space blast identified as black hole collision” · NOIRLab, “Kilonova Discovery Challenges our Understanding of Gamma-Ray Bursts” · CNN, “Rare cosmic collision acted like one of the ‘factories of gold’ in the universe”

Selected press on our optical follow-up of the “Brightest Of All Time” GRB (126 total mentions, total reach of 20.7 million):

- NOIRLab Science Release, [“Record-Breaking Gamma-Ray Burst Possibly Most Powerful Explosion Ever Recorded”](#)
- NSF Science Now Video, [“Star Collapses into NEW Black Hole”](#)

Selected articles on [Fong, Laskar, Rastinejad et al. 2021](#):

- National Science Foundation News, [“Birth of magnetar from colossal collision potentially spotted for first time”](#)
- Pop Science, [“This ‘kilonova’ shines so bright, it defies the odds”](#)

OUTREACH	Invited Public Talk, Conference for Woman Students for the Exploration and Development of Space, Canada	2026 (exp.)
	Invited Public Talk, University of Toronto ASX Symposium	2026
	Mentor, UMD GRAD-MAP Program	2026
	Mentor, UMD First-Year Graduate Student Mentoring Program	2025-26
	Mentor to Astronomy Postdoc Applicant, AMP-UP Program	2025-26
	CIERA Peer Mentor, Northwestern	2020-25
	◦ <i>Met monthly with a new first-year astronomy PhD student. Continued to provide professional advice and feedback on fellowship applications for some mentees for several years.</i>	
	Astronomy on Tap Chicago Talk	2023
	Organizer, CIERA High School Mentoring Program (REACH)	2020-23
	◦ <i>Mentor of 3 high schoolers on astronomy projects. Lead organizer for 1-on-1 mentoring in 2022, leading weekly group meetings with 12 students.</i>	
	Astronomy on Tap Santa Barbara Talk	2022
	Lead Organizer, CIERA Data Science for Public Good Conference	2021
	◦ <i>Created and led the organization of a virtual conference for high schoolers held July 2021. Developed approachable demonstrations of using data science techniques to further public good (e.g., using machine learning to model past women’s health decisions and predict future needs in public health).</i>	
	SPARK Stargazing Nights	2019
	◦ <i>Co-led weekly stargazing nights for STEM summer camp girls ages 10-13.</i>	

PUBLICATIONS

★ **Denotes publications accompanied by a press release.**

First-author:

7. ★ **Rastinejad, J. C.**, Srinivasaragavin, G., Sarin, N. et al. 2026 *ApJL*, 1007, L9. [“A Multi-Wavelength View of the First Type Ic-BL Supernova with an X-ray Shock Breakout.”](#)
6. ★ **Rastinejad, J. C.**, Levan, A. J., Jonker, P. G. et al. 2025 *ApJL*, 988, L13. [“EP 250108a/ SN 2025kg: Observations of the most nearby Broad-Line Type Ic Supernova following an Einstein Probe Fast X-ray Transient.”](#)
5. **Rastinejad, J. C.**, Fong, W., Kilpatrick, C. D., Nicholl, M., Metzger, B. D. 2025 *ApJ*, 979, 190. [“Uniform Modeling of Observed Kilonovae: Implications for Diversity and the Progenitors of Merger-Driven Long Gamma-Ray Bursts.”](#)
4. **Rastinejad, J. C.**, Fong, W., Levan, A. J. et al. 2024 *ApJ*, 968, 14. [“A Hubble Space Telescope Search for *r*-Process Nucleosynthesis in Gamma-ray Burst Supernovae.”](#)
3. ★ **Rastinejad, J. C.**, Gompertz, B. P., Levan, A. J. et al. 2022 *Nature*, 612, 7939. [“A Kilonova Following a Long-Duration Gamma-ray Burst at 350 Mpc.”](#)

2. **Rastinejad, J. C.**, Paterson, K., Fong, W. et al. 2022 *ApJ*, 927, 50. “A Systematic Exploration of Kilonova Candidates from Neutron Star Mergers During the Third Gravitational Wave Observing Run.”
1. **Rastinejad, J. C.**, Fong, W., Kilpatrick, C. D. et al. 2021, *ApJ*, 916, 89. “Probing Kilonova Ejecta Properties Using a Catalog of Short Gamma-Ray Burst Observations.”

Major contributions as co-author:

6. Levan, A. J., **Rastinejad, J. C.** et al. 2026 *submitted to MNRAS* “Gamma-ray burst progenitors revisited.”
5. Fishbach, M., Ji, A., Fong, W., Wu, T., **Rastinejad, J. C.** et al. 2026 *ApJL*, 1006, L49. “Implications of Low Neutron Star Merger Rates for Gamma-Ray Bursts, r-process Production, and Galactic Double Neutron Stars.”
4. Pieterse, D., Levan, A. J., Rasio, M. E., **Rastinejad, J. C.** et al. 2026 *MNRAS*, 548, 2. “GRB 210704A: a luminous fast blue transient in a GRB afterglow at $z=2.34$.”
3. Hosseinzadeh, G., Paterson, K., **Rastinejad, J. C.** et al. 2024 *ApJ*, 946, 35. “SAGUARO: Time-domain Infrastructure for the Fourth Gravitational-wave Observing Run and Beyond.”
2. Paterson, K., Lundquist, M., **Rastinejad, J. C.** et al. 2021 *ApJ*, 912, 128. “Searches after Gravitational Waves Using ARizona Observatories (SAGUARO): Summary of Observations and Analysis of Candidates from Advanced LIGO/Virgo’s Third Observing Run.”
1. ★ Fong, W., Laskar, T., **Rastinejad, J. C.** et al. 2021 *ApJ*, 906, 127. “The Broad-band Counterpart of the Short GRB 200522A at $z = 0.5536$: A Luminous Kilonova or a Collimated Outflow with a Reverse Shock?”

Additional contributions as co-author:

25. Vieira, N. et al. et al. incl. **Rastinejad, J. C.**, 2026, *Accepted to ApJ*. “Search For a Counterpart to the Subsolar Mass Gravitational Wave Candidate S251112cm”
24. Hinds, K. et al. et al. incl. **Rastinejad, J. C.**, 2026, *Submitted to ApJ*. “Early Multiwavelength Observations of AT 2026fgk: The Luminous Afterglow to Sub-luminous GRB 260310A, Identified Independently of a Gamma-ray Trigger”
23. Stein, R. et al. et al. incl. **Rastinejad, J. C.**, 2026, *ApJL*, 1006, L57. “TDE 2025abcr: A Tidal Disruption Event in the Outskirts of a Massive Galaxy”
22. Eyles-Ferris, R. et al. et al. incl. **Rastinejad, J. C.**, 2026, *MNRAS*, 546, 5. “Can GRB 250702B be explained as the tidal disruption of a white dwarf by an intermediate mass black hole? Yes”
21. Zhou, H. et al. et al. incl. **Rastinejad, J. C.**, 2026, *ApJ*, 998, 163. “EP241217a: A Likely Type II GRB with an Achromatic Bump at $z = 4.59$ ”
20. Schroeder, G. et al. incl. **Rastinejad, J. C.**, 2025, *ApJ*, 998, 93. “No Sign of a Magnetar Remnant Following the Kilonova-Producing Long GRB 211211A ~ 1.7 Years Later”
19. Franz, N. et al. incl. **Rastinejad, J. C.**, 2025, *ApJL*, 994, L45. “Optimizing Kilonova Searches: A Case Study of the Type IIb SN 2025ulz in the Localization Volume of the Low-Significance Gravitational Wave Event S250818k”
18. Pillas, M. et al. incl. **Rastinejad, J. C.** 2025, *Physical Review D*, 112, 8. “Limits on the Ejecta Mass During the Search for Kilonovae Associated with Neutron Star-Black Hole Mergers: A case study of S230518h, GW230529, S230627c and the Low-Significance Candidate S240422ed.”
17. Chrimes, A. A. et al. incl. **Rastinejad, J. C.**, 2025, *A&A*, 702, A168. “White dwarf-neutron star binaries: a plausible pathway for long-duration gamma-ray bursts from compact object mergers?”
16. ★ Levan, A. J. et al. incl. **Rastinejad, J. C.**, 2025, *ApJL*, 990, L28. “The day-long, repeating GRB 250702B: A unique extragalactic transient.”
15. ★ Eyles-Ferris, R. et al. incl. **Rastinejad, J. C.** 2025, *ApJL*, 988, 14. “The kangaroo’s first hop: the early fast cooling phase of EP250108a/SN 2025kg.”
14. Schroeder, G. et al. incl. **Rastinejad, J. C.** 2025, *ApJ* 982, 42. “The Long-lived Broadband Afterglow of Short γ -ray burst 231117A and the Growing Radio-Detected Short GRB Population.”
13. Ibrahimzade, D. et al. incl. **Rastinejad, J. C.** 2025, *ApJ*, 980, 92. “Constraints on Relativistic Jets from the Fast X-ray Transient 210423 using Prompt Radio Follow-Up Observations.”

12. Schroeder, G. et al. incl. **Rastinejad, J. C.** 2024, *ApJ*, 970, 139. “A Radio Flare in the Long-Lived Afterglow of the Distant Short GRB 210726A: Energy Injection or a Reverse Shock from Shell Collisions?”
11. ★ Levan, A. J. et al. incl. **Rastinejad, J. C.**, 2024, *Nature*, 626, 8000. “JWST detection of heavy neutron capture elements in a compact object merger.”
10. Shrestha, M. et al. incl. **Rastinejad, J. C.** 2024, *ApJ*, 961, 247. “Evidence of weak circumstellar medium interaction in the Type II SN 2023axu”.
9. Rouco Escorial, A. et al. incl. **Rastinejad, J. C.** 2023 *ApJ*, 959, 13. “The Jet Opening Angle and Event Rate Distributions of Short Gamma-ray Bursts from Late-time X-ray Afterglows.”
8. Gordon, A., et al. incl. **Rastinejad, J. C.**, 2023, *ApJ*, 954, 80. “The Demographics, Stellar Populations, and Star Formation Histories of Fast Radio Burst Host Galaxies: Implications for the Progenitors.”
7. Levan, A. J. et al. incl. **Rastinejad, J. C.**, 2023, *ApJL*, 946, L28. “The first JWST spectrum of a GRB afterglow: No bright supernova in observations of the brightest GRB of all time, GRB 221009A.”
6. Levan, A. J. et al. incl. **Rastinejad, J. C.** 2023 *Nature Astronomy*, 7, 976-985. “A long-duration gamma-ray burst of dynamical origin from the nucleus of an ancient galaxy.”
5. Gompertz, B. P. et al. incl. **Rastinejad, J. C.**, 2023, *Nature Astronomy*, 7, 67-79. “A minute-long merger-driven gamma-ray burst from fast-cooling synchrotron emission.”
4. Fong, W. et al. incl. **Rastinejad, J. C.**, 2022, *ApJ*, 940, 56. “Short GRB Host Galaxies I: Photometric and Spectroscopic Catalogs, Host Associations, and Galactocentric Offsets.”
3. ★ Laskar, T. et al. incl. **Rastinejad, J. C.**, 2022, *ApJL*, 935, L11. “The First Short GRB Millimeter Afterglow: The Wide-Angled Jet of the Extremely Energetic SGRB 211106A.”
2. Giarratana, S. et al. incl. **Rastinejad, J. C.**, 2022, *A&A*, 664, A36. “VLBI observations of GRB 201015A, a relatively faint GRB with a hint of Very High Energy gamma-ray emission.”
1. ★ Hajela, A. et al. incl. **Rastinejad, J. C.**, 2022, *ApJL*, 927, L17. “The emergence of a new source of X-rays from the binary neutron star merger GW170817.”

WHITE PAPERS

2. Burns, E., Agullo, I., Andreoni, I., Deibel, C. M., Fryer, C. L., Latouf, N., Miller, M. C., **Rastinejad, J. C.**, Sitarski, B. N., Wadiasingh, Z. 2026, [arXiv:2608.31160](https://arxiv.org/abs/2608.31160). “Ad Astra White Paper: A Pitch for the Next 25 Years of NASA’s Physics of the Cosmos Program”.
1. Levan, A. J., Gompertz, B. P., Malesani, D. B., Martin-Carrillo, A., Van Hoof, A., Jonker, P. G., **Rastinejad, J. C.**, Schneider, B., Tanvir, N. R. 2026, Submitted to the International Astronomical Union Proceedings Series. “JWST insights into gamma-ray burst progenitors across cosmic time”