

Itai Linial – Curriculum Vitae

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Education

- 2017-2022: PhD in Physics, Hebrew University of Jerusalem, *Summa cum Laude*
Thesis: *Electromagnetic Counterparts to Gravitational Wave Sources and Aspherical Explosions*
Supervisor: Prof. Re'em Sari
- 2015-2017: MSc in Physics, Hebrew University of Jerusalem, *Summa cum Laude*
Thesis: *Mass transfer in binary systems*
Supervisor: Prof. Re'em Sari
- 2013-2014: BSc in Physics, Hebrew University of Jerusalem, *Magna cum Laude*
2013-2014: BSc in Mathematics, Hebrew University of Jerusalem, *Magna cum Laude*

Academic Appointments

- 01/2026-2029: Einstein Fellow, NASA Hubble Fellowship Program, New York University.
2022-12/2025: Postdoctoral fellow, THEA, Columbia University.
2022-2023: Member, School of Natural Sciences, Institute for Advanced Study.

Honors and Awards

- **NASA Hubble Fellowship** (2026-2029)
- **Leon Rosenfeld Award** (The Niels Bohr Institute) (2024)
- **The Gruber Foundation Prize Fellowship** (2022)
Presented annually by the International Astronomical Union (IAU) to 2-3 outstanding recent graduates in astronomy or astrophysics worldwide.
- **THEA (Theoretical High-Energy Astrophysics) Fellowship** (2022).
- **Rothschild Fellowship** (2022)
Awarded annually by Yad-HaNadiv to ~20 graduates in sciences and humanities from Israeli universities.
- **Burke Prize Fellowship**, California Institute of Technology (2022, declined)
- **CIERA Prize Fellowship**, Northwestern University (2022, declined)
- **Adams Fellowship** for Ph.D. studies (Adams Fellow, 2018 cohort; 2018-2022)
Awarded annually to 6-8 early PhD students in exact sciences across Israel.
- 69th Lindau Nobel Laureate Meeting dedicated to physics (2019)
- **Arnold Rosenblum Award** for outstanding achievements in astrophysics (2017)
- **Dean's list** of the Hebrew University of Jerusalem (2014, 2015, 2016)
- Hebrew University's delegation to the LHC in CERN (2013)

- National Astrophysics Olympiad (*Dror Sade*), third place (2009)
- Shalhevet Freier Physics Tournament, Weizmann Institute, second place (2007)
- National Mathematics Teams Olympiad, second place (2007)

Selected recent talks and colloquia

- “Dynamics and Energetic Transients in Galactic Nuclei”, Astrophysics Colloquium, UW-Madison, Madison, WI, USA. November 2025. (*invited*).
- “Dynamics and Energetic Transients in Galactic Nuclei”, Astrophysics Colloquium, Cornell, Ithaca, NY, USA. October 2025. (*invited*).
- “Dynamics and Energetic Transients in Galactic Nuclei”, Weizmann Institute, Rehovot, Israel. July 2025. (*invited*).
- “Repeating Nuclear Transients – Theoretical Challenges and Opportunities”, X-ray Quasi Periodic Eruptions and extreme, repeating extragalactic transients, Madrid, Spain. June 2025. (*invited*).
- “Repeating Nuclear Transients and Quasi-Periodic Eruptions”, MKI Colloquium, MIT, Boston, MA, USA. April 2025. (*invited*).
- “Repeating Nuclear Transients and Quasi-Periodic Eruptions”, Frontiers of Astrophysical Black Holes, Sexten, Italy. March 2025. (*invited*).
- “EMRI+TDE=QPE: Star-Disk Interaction and Quasi-Periodic Eruptions”, HEAD Frontier Seminar, March 2025. (*invited*).
- “Repeating Nuclear Transients”, CCA Colloquium, Flatiron Institute, New York, NY, USA. February 2025. (*invited*).
- “Galactic Nuclei: Gravitational Wave Sources and High-Energy Transients”, HEAD I, AAS 245, National Harbor, MD, USA. January 2025. (*invited*).
- “Repeating Nuclear Transients – Theoretical Challenges and Opportunities”, HEAD II, AAS 245, National Harbor, MD, USA. January 2025. (*invited*).
- “EMRI+TDE=QPE: QPEs, TDEs and Star-Disk Interaction”, Transient Phenomena and Physical Processes around Supermassive Black Holes, Tsung-Dao Lee Institute, Shanghai, USA. October 2024. (*invited*).
- “Repeating Transients in Galactic Nuclei”, Bologna, Italy. October 2024.
- “EMRI+TDE=QPE: Star-Disk Interaction around Massive Black Holes and Quasi-Periodic Eruptions”, New ideas on the ORIGIN of BLACK HOLE MERGERS, Copenhagen, Denmark. August 2024. (*invited*).
- “Repeating Nuclear Transients: QPEs from Star-Disk Interaction”, Seventeenth Marcel Grossman Meeting, Pescara, Italy. July 2024. (*invited*).
- “Stellar Destruction near Supermassive Black Holes and Quasi-Periodic Eruptions”, UCSB Astro Lunch Seminar, CA, USA. May 2024. (*invited*).
- “Star-Disk Interaction and Quasi-Periodic Eruptions”, TDE24 in KITP, Santa Barbara, USA. April 2024. (*invited*).
- “Stellar Destruction near Massive Black Holes and Quasi-Periodic Eruptions”, UCLA Astro Colloquium, CA, USA. April 2024. (*invited*).
- “Quasi-Periodic Eruptions from Galactic Nuclei”, Loss Cones in Como, Italy. February 2024. (*invited*).
- “Quasi-Periodic Eruptions from Star-Disk Collisions”, Intermediate Mass Black Holes: The Dawn of a Revolutionary Era, Belize. December 2023.

- “Quasi-Periodic Eruptions from Galactic Nuclei”, Theoretical Physics Colloquium, Oxford University, UK. October 2023. (*invited*).
- “Quasi-Periodic Eruptions from Galactic Nuclei”, DAMTP, Cambridge University, UK. October 2023. (*invited*).

Teaching Experience

Teaching assistant in the physics department. Involved syllabus design, delivering frontal lessons, lab instruction, writing and grading assignments and exams, holding office hours.

- 2015-2022 Teaching assistant at the Hebrew University in the Physics department
- 2015-2017 “Physics lab”, for BSc second year students (physics major; mandatory)
- 2016-2018 “Classical mechanics” for BSc biology students (biology major, mandatory)
- 2018-2019 “Astronomy for Poets” – introduction to astronomy for non-science majors
- 2018-2022 “Analytical mechanics” for BSc students (physics major; mandatory)
- 2021-2022 “Electricity and Magnetism” for BSc students (physics major; mandatory)

Organized workshops, external activities and Outreach

- **Member** of the American Astronomical Society (AAS), International Astronomical Union (IAS).
- **Referee** for the Monthly Notices of the Royal Astronomical Society, The Astrophysical Journal, Nature Astronomy, Physical Review D.
- 2025 – Lecturer at the CCA Summer School: Landscape of Astronomical Transients, Flatiron Institute, New York.
- 2024-2025 – Participated in a Project BUILD – a structured program at Columbia University focused on developing effective research mentorship skills.
- 2025 - Invited member of the International SOC of "X-ray Quasi Periodic Eruptions and extreme, repeating extragalactic transients" (June 9-13 2025, ESAC, Madrid, Spain).
- 2024 - Columbia University Postdoc-Grad student mentorship program (2024-present).
- 2024 - Astronomy Colloquium Committee, Columbia University (2024-present).
- 2023 – Organized the workshop “Flares and Bursts in Galactic Nuclei @ IAS”.
<https://www.ias.edu/sns/flares-and-bursts-galactic-nuclei>
- 2023 – Organized a 1-day TDE Workshop at Columbia University.
- 2021 – Organized the Racah Institute of Physics summer workshop for outstanding undergraduate physics students.
- 2018-2021 – Organized and participated in public outreach stargazing events.
- 2018 – Volunteered in the “Speaking Hebrew” program – Year-round Hebrew course for Palestinian women from East Jerusalem.
- 2016 - “Engineers without borders” – developed and taught a science and sustainability program in a vocational high school in Jerusalem, Israel.

Journal Publications (Peer reviewed)

13 first authored, 8 second author, 7 other co-authored, 3 w/ mentored student.

1. Huang, X., **Linial, I.**, Jiang, Y., “Multi-band Emission from Star-Disk Collision and Implications for Quasi-Periodic Eruptions”, The Astrophysical Journal, Volume 993, Issue 2,

- id.186, 26 pp (2025).
<https://doi.org/10.3847/1538-4357/ae07ca>
2. **Linial, I.**, Metzger, B. D., Quataert, E., “QPEs from EMRI Debris Streams Impacting Accretion Disks in Galactic Nuclei”, *The Astrophysical Journal*, Volume 991, Issue 2, id.147, 20 pp (2025).
<https://doi.org/10.3847/1538-4357/adfa0e>
 3. Makrygianni, L., Arcavi, I., Newsome, M., Bandopadhyay, A., Coughlin, E. R., **Linial, I.**, et al., “The Double Tidal Disruption Event AT 2022dbl Implies That at Least Some "Standard" Optical TDEs are Partial Disruptions”, *The Astrophysical Journal Letters*, Volume 987, Issue 1, id.L20, 22 pp (2025).
<https://doi.org/10.3847/2041-8213/ade155>
 4. Chakraborty, J., Kara, E., Arcodia, R., Buchner, J., Giustini, M., Hernandez-Garcia, L., **Linial, I.**, et al., “Discovery of Quasi-periodic Eruptions in the Tidal Disruption Event and Extreme Coronal Line Emitter AT2022upj: implications for the QPE/TDE fraction and a connection to ECLEs”. *The Astrophysical Journal Letters*, Volume 983, Issue 2, id.L39, 14 pp (2025).
<https://doi.org/10.3847/2041-8213/adc2f8>
 5. Vurm, I., **Linial, I.**, Metzger B. D., “Radiation Transport Simulations of Quasi-Periodic Eruptions from Star-Disk Collisions”. *The Astrophysical Journal*, Volume 983, Issue 1, id.40, 26 pp (2025).
<https://doi.org/10.3847/1538-4357/adb74d>
 6. Miniutti, G., Franchini, A., Bonetti, M., Giustini, M., Chakraborty, J., Arcodia, R., Saxton, R., Quintin, E., Kosec, P., **Linial, I.**, Sesana, A., "Eppur si muove: Evidence for disc precession or a sub-milliparsec SMBH binary in the QPE-emitting galaxy GSN 069". *Astronomy & Astrophysics*, Volume 693, id.A179, 25 pp (2025).
<https://doi.org/10.1051/0004-6361/202452400>
 7. Rom, B.†, **Linial, I.**, Kaur, K., Sari, R., “Dynamics around supermassive black holes: Extreme mass-ratio inspirals as gravitational-wave sources”. *The Astrophysical Journal*, Volume 977, Issue 1, id.7, 11 pp (2024). († = mentored student)
<https://doi.org/10.3847/1538-4357/ad8b1d>
 8. **Linial, I.**, Quataert, E., “Tidal Disruption of a Star on a Nearly Circular Orbit”, *The Astrophysical Journal*, Volume 974, Issue 1, id.67, 17 pp (2024).
<https://doi.org/10.3847/1538-4357/ad67cf>
 9. Arcodia, R., **Linial, I.**, Miniutti, G., Franchini, A., Giustini, M., Bonetti, M., Sesana, A., Soria, R., Chakraborty, J., Dotti, M., Kara, E., Merloni, A., Ponti, G., Vincentelli, F., “Ticking away: the long-term X-ray timing and spectral evolution of eRO-QPE2”, *Astronomy & Astrophysics*, Volume 690, id.A80, 11 pp (2024).

<https://doi.org/10.1051/0004-6361/202451218>

10. **Linial, I.**, Metzger, B. D., “Coupled Disk-Star Evolution in Galactic Nuclei and the Lifetimes of QPE Sources”, *The Astrophysical Journal*, Volume 973, Issue 2, id.101, 17 pp (2024).
<https://doi.org/10.3847/1538-4357/ad639e>
11. Wevers, T., French, K. D., Zabludoff, A. I., Fischer, T., Rowlands, K., Guolo, M., Dalla Barba, B., Arcodia, R., Berton, M., Bian, F., **Linial, I.**, Miniutti, G., Pasham, D. R., “Quasi-periodic X-ray eruptions and tidal disruption events prefer similar host galaxies”. *The Astrophysical Journal Letters*, Volume 970, Issue 1, id.L23, 15 pp (2024).
<https://doi.org/10.3847/2041-8213/ad5f1b>
12. Pasham, D. R., Coughlin, E. R., Zajacek, M., **Linial, I.**, et al., “Alive but Barely Kicking: News from 3+ years of Swift and XMM-Newton X-ray Monitoring of Quasi-Periodic Eruptions from eRO-QPE1”, *The Astrophysical Journal Letters*, Volume 963, Issue 2, id.L47, 13 pp (2024).
<https://doi.org/10.3847/2041-8213/ad2a5c>.
13. **Linial, I.**, Metzger, B. D., “Ultraviolet Quasi-periodic Eruptions from Star-Disk Collisions in Galactic Nuclei”, *The Astrophysical Journal Letters*, Volume 963, Issue 1, id.L1, 7 pp (2024).
<https://doi.org/10.3847/2041-8213/ad2464>.
14. **Linial, I.**, Quataert, E., “Period Evolution of Repeating Transients in Galactic Nuclei”, *Monthly Notices of the Royal Astronomical Society*, Volume 527, Issue 2, pp.4317-4329 (2024).
<https://doi.org/10.1093/mnras/stad3470>.
15. **Linial, I.**, Metzger, B. D., “EMRI+TDE=QPE: Periodic X-ray Flares from Star-Disk Collisions in Galactic Nuclei”, *The Astrophysical Journal*, Volume 957, Issue 1, id.34, 19 pp (2023).
<https://doi.org/10.3847/1538-4357/acf65b>.
16. Rose, S., Naoz, S., Sari, R., **Linial, I.**, “Stellar Collisions in the Galactic Center: Massive Stars, Collision Remnants, and Missing Red Giants”. *The Astrophysical Journal*, Volume 955, Issue 1, id.30, 20 pp (2023).
<https://doi.org/10.3847/1538-4357/acee75>.
17. Rom, B.†, **Linial, I.**, Sari, R., “Energy Flux and Particle Flux in Steady-state Solutions of Nuclear Star Clusters”, *The Astrophysical Journal*, Volume 951, Issue 1, id.14, 4 pp (2023).
<https://doi.org/10.3847/1538-4357/acd54f>. († = mentored student)
18. **Linial, I.**, Sari, R., “Unstable Mass Transfer from a Main-Sequence Star to a Supermassive Black Hole and Quasi-Periodic Eruptions”, *The Astrophysical Journal*, Volume 945, Issue 2, id.86, 11 pp (2023).
<https://doi.org/10.3847/1538-4357/acbd3d>.

19. Krolik, J., **Linial, I.**, “Quasi-Periodic Erupers: A Stellar Mass-Transfer Model for the Radiation”, The Astrophysical Journal, Volume 941, Issue 1, id.24, 7 pp (2022).
<https://www.doi.org/10.3847/1538-4357/ac9eb6>.
20. **Linial, I.**, Sari, R., “Stellar Distributions Around a Supermassive Black Hole: Strong Segregation Regime Revisited”, The Astrophysical Journal, Volume 940, Issue 2, id.101, 7 pp (2022).
<https://doi.org/10.21203/rs.3.rs-1443433/v1>.
21. Rose, S. C., Naoz, S., Sari, R., **Linial, I.**, “The Formation of Intermediate Black Holes in Galactic Nuclei”, The Astrophysical Journal Letters, Volume 929, Issue 2, id.L22, 9 pp (2022).
<https://doi.org/10.3847/2041-8213/ac6426>.
22. Irwin, C., **Linial, I.***, Sari, R., Piran, T., Nakar, N., “Bolometric light curves of aspherical shock breakout”, Monthly Notices of the Royal Astronomical Society, Volume 508, Issue 4, pp.5766-5785 (2021).
<https://doi.org/10.1093/mnras/stab2705> (* = equal contribution)
23. **Linial, I.**, Fuller, J., Sari, R., “Partial stellar explosions – ejected mass and minimal energy”, Monthly Notices of the Royal Astronomical Society, Volume 501, Issue 3, pp.4266-4275 (2021).
<https://doi.org/10.1093/mnras/staa3969>.
24. **Linial, I.**, Sari, R., “Oblique Shock Breakout from a Uniform Density Medium”, Physics of Fluids 31, id. 097102 (2019).
<https://doi.org/10.1063/1.5100060>.
25. **Linial, I.**, Sari, R., “Cooling off with a kilonova - Lower Limit on the Expansion Velocity of GW170817”, Monthly Notices of the Royal Astronomical Society, Volume 483, Issue 1, pages 624-627 (2019).
<https://doi.org/10.1093/mnras/sty3170>.
26. **Linial, I.**, Gilbaum, S.†, Sari, R., “Modal Decomposition of TTV: Inferring Planet Masses and Eccentricities”, The Astrophysical Journal, Volume 860, Issue 1, article id. 16 (2018).
<https://doi.org/10.3847/1538-4357/aac21b>. († = mentored student)
27. **Linial, I.**, Sari, R., “Mass loss through the L2 Lagrange point – Application to Main Sequence EMRI”, Monthly Notices of the Royal Astronomical Society, Volume 469, Issue 2, pages 2441-2454 (2017).
<https://doi.org/10.1093/mnras/stx1041>.

In review

28. Martire. P., Rossi, E. M., Stone, N. C., Steinberg, E., Kilmetis, K., **Linial, I.**, “Wind-mediated Eddington-limited emission in a $10^4 M_{\odot}$ Black Hole Tidal Disruption Event”, Submitted to Monthly Notices of the Royal Astronomical Society (2025).
29. Lane, Z. G., et al., including **Linial, I.**, “SN 2019vxn: A Shocking Coincidence between Fermi and TESS”, Submitted to The Astrophysical Journal (2025).

30. Suková, P., Tombesi, F., Pasham, D. R., Zajaček, M., Wevers, T., Ryu, T., **Linial, I.**, Franchini, A., “Repeating transients in galactic nuclei: confronting observations with theory”. In review, Proceedings of the Seventeenth Marcel Grossmann Meeting, Pescara, Italy, 2024.