

Itai Linial – Curriculum Vitae

(January 2023)

Personal

Date of birth: July 5, 1990 (Israel)

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Academic Appointments

2022-present: Postdoctoral researcher, theoretical astrophysics group, Columbia University.

2022-present: Member, School of Natural Sciences, Institute for Advanced Study.

Education

2017-2022: PhD in Physics, Hebrew University of Jerusalem
Thesis: *Electromagnetic Counterparts to Gravitational Wave Sources and Aspherical Explosions*
Supervisor: Prof. Re'em Sari

2015-2017: M.Sc in Physics, Hebrew University of Jerusalem, *Suma cum Laude*
Thesis: *Mass transfer in binary systems*
Supervisor: Prof. Re'em Sari

2013-2014: B.Sc in Physics, Hebrew University of Jerusalem, *Magna cum Laude*

2013-2014: B.Sc in Mathematics, Hebrew University of Jerusalem, *Magna cum Laude*

Honors and Awards

- The Gruber Foundation Prize Fellowship (2022)
- THEA Fellowship (2022)
- Rothschild Fellowship (2022)
- CIERA Prize Fellowship, Northwestern University (2022, declined)
- Burke Prize Fellowship, California Institute of Technology (2022, declined)
- [Adams Fellowship](#) for Ph.D. studies (Adams Fellow, 2018 cohort; 2018-2022)
- 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)
- Ulpanat de-Shalit program for undergraduate students, Weizmann institute (2013)
- Participated in the Hebrew University's delegation to the LHC in CERN (2013)
- National Astrophysics Olympiad (*Dror Sade*), third place (2009)

- International physics Olympiad (IPhO) (2008)
- Shalhevet Freier Physics Tournament, Weizmann Institute, second place (2007)
- National Mathematics Teams Olympiad, second place (2007)

Selected talks and colloquia

- “Stellar Destruction in Galactic Nuclei and Quasi Periodic Eruptions”, Black Hole Dynamics, Niels Bohr Institute, Denmark, Copenhagen. June 2022. (*invited*)
- “Stellar Destruction in Galactic Nuclei”, Dynamical Formation of Gravitational Wave Sources, Aspen, CO, USA. January 2022.
- “Shocking Transients – Early Light of Stellar Explosions”, Astro-Plasma Seminar, Princeton University, NJ, USA. October 2021. (*invited*)
- “Shocking Transients – Early Light of Stellar Explosions”, TAC seminar, UC Berkeley, CA, USA. October 2021. (*invited*)
- “Shocking Transients”, Astrophysics seminar, TAPIR, Caltech, CA, USA. October 2021. (*invited*)
- “Stellar Feasts of Supermassive Black Holes”, Astrophysics department seminar, UCLA Physics and Astronomy department. University of California Los Angeles, CA, USA. December 2019.
- “Early light from Aspherical explosions”, Astro-lunch seminar, Astronomy department, University of California, Berkeley, CA, USA. November 2019.
- “Early light from Aspherical explosions”, Astrophysics seminar, TAPIR, Caltech, CA, USA. November 2019.
- “Early light from Aspherical explosions”, Astrophysics department seminar, University of California Los Angeles (UCLA), CA, USA. August 2019.
- “TTV Modes – Inferring Planet Mass and Eccentricity”, Exoplanets II Conference, Cambridge University, UK. June 2018.
- “Mass loss through L2”, Physics of Extreme Gravity Stars, NORDITA, Stockholm, Sweden. June 2017.

Teaching Experience

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| 2015-2022 | Teaching assistant at the Hebrew University in the Physics department |
| 2015-2017 | “Physics lab”, for B.Sc. second year students (physics major; mandatory) |
| 2016-2018 | “Classical mechanics” for B.Sc. biology students (biology major, mandatory) |
| 2018-2019 | “Astronomy for Poets” – introduction to modern astronomy for non-science students of the Hebrew University. |
| 2018-2022 | “Analytical mechanics” for B.Sc. students (physics major; mandatory) |

Scientific Engagement

- Referee for the Monthly Notices of the Royal Astronomical Society.
- Referee for the Astrophysical Journal.

Outreach and external activities

- 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 – Hebrew course for Palestinian women from East Jerusalem.
- 2016 - Volunteered in “Engineers without borders” – developed and taught a science and sustainability program in a vocational high school in Jerusalem, Israel.
- 2008-2013 – Mandatory military service an elite technological unit in the IDF. Led a computer vision research and development team.

Journal Publications (Peer reviewed)

1. Krolik, J., **Linial, I.**, “Quasi-Periodic Eruptors: 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>. IF: 5.75 [Q1: 10/91, 89th percentile].
2. **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>. IF: 5.75 [Q1: 10/91, 89th percentile].
3. 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>. IF: 8.811 [Q1: 8/91, 91st percentile].
4. 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, pages 5766–5785, (2021). <https://doi.org/10.1093/mnras/stab2705> (* = equal contribution) IF: 5.36 [Q1: 13/91, 86th percentile].
5. **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, pages 4266-4275, (2021). <https://doi.org/10.1093/mnras/staa3969>. IF: 5.36 [Q1: 13/91, 86th percentile].
6. **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>. IF: 3.52 [Q1: 6/34, 82nd percentile].
7. **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>. IF: 5.36 [Q1: 13/91, 86th percentile].
8. **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>. IF: 5.75 [Q1: 10/91, 89th percentile].
 9. **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>. IF: 5.36 [Q1: 13/91, 86th percentile].
 10. Mahlab, S., **Linial, I.**, Linial, M., “Translation Efficiency of Synaptic Proteins and Its Coding Sequence Determinants”, *Bioinformatics*, pages 151-157, (2013). IF: 7.14 [Q1: 6/146, 96th percentile].
 11. Tirosh, I., **Linial, I.**, Ashkenazi M., Linial, M., “Short Toxin-like Proteins Abound in Cnidaria Genomes”, *Toxins (Basel)*, 4 (11), pages 1367-1384, (2012). <https://doi.org/10.3390/toxins4111367>. IF: 4.55 [Q1: 21/93, 77th percentile].

Submitted and Under Review

1. **Linial, I.**, Sari, R., “Unstable Mass Transfer from a Main-Sequence Star to a Supermassive Black Hole and Quasi-Periodic Eruptions”, Submitted to *The Astrophysical Journal*. <https://doi.org/10.48550/arXiv.2211.09851>
 2. Rom, B., **Linial, I.**, Sari, R., “Energy Flux and Particle Flux in Steady-State Solutions of Nuclear Star Clusters”, Submitted to *The Astrophysical Journal*.
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