

# Curriculum Vitae

## Ore Gottlieb

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| CONTACT INFORMATION             | School of Physics and Astronomy<br>Tel Aviv University<br>Tel Aviv, 69978, Israel  | <i>Phone:</i> +972-54-6573276<br><i>E-mail:</i> oregottlieb@gmail.com<br><i>Web:</i> <a href="http://www.astro.tau.ac.il/~ore/">http://www.astro.tau.ac.il/~ore/</a> |
| RESEARCH INTERESTS              | Gamma-ray Bursts, Neutron star mergers, Supernovae, Dwarf galaxies and dark matter profiles  |  |
| EDUCATION                       |  |  |
|                                 | 2016-2021  | Ph.D. in Physics and Astronomy, advised by Ehud Nakar, Tel Aviv University, Israel   |
|                                 | 2014-2016  | M.Sc. in Physics, cum Laude, advised by Amiel Sternberg, Tel Aviv University, Israel   |
|                                 | 2011-2014  | Additional B.Sc. in Physics, Tel Aviv University, Israel   |
|                                 | 2009-2011  | B.Sc. in Computer Science, Technion, Haifa, Israel   |
| SCHOLARSHIPS, HONORS AND AWARDS | CIERA Postdoctoral Fellowship (2021)<br>Rothschild Postdoctoral Fellowship (2021)<br>Israel Physical Society - Yoel Rakah Prize for Outstanding Academic Theoretical Student (2021)<br>Award for outstanding achievements in research, Tel Aviv University (2021)<br>Award for outstanding achievements in research, Tel Aviv University (2019)<br>The Yuval Neeman award for outstanding academic achievement, Tel Aviv University (2019)<br>Award for outstanding achievements in research, Tel Aviv University (2018) |  |

## List of Publications

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|---------------------------|---|
| FIRST AUTHOR PUBLICATIONS | 11. <b>O. Gottlieb</b> , N. Globus<br>“The role of jet-cocoon mixing, magnetization and shock breakout in neutrino and cosmic-ray emission from short GRBs”, arXiv; <a href="https://arxiv.org/abs/2105.01076">https://arxiv.org/abs/2105.01076</a> . |
|                           | 10. <b>O. Gottlieb</b> , O. Bromberg, A. Levinson, E. Nakar<br>“Intermittent mildly magnetized jet as the source of GRBs”, MNRAS (2021); <a href="https://doi.org/10.1093/mnras/stab1068">https://doi.org/10.1093/mnras/stab1068</a> .                |
|                           | 9. <b>O. Gottlieb</b> , E. Nakar, O. Bromberg<br>“The structure of hydrodynamic $\gamma$ -ray burst jets”, MNRAS, 500, 3511 (2021); <a href="https://doi.org/10.1093/mnras/staa3501">https://doi.org/10.1093/mnras/staa3501</a> .                     |

8. **O. Gottlieb**, O. Bromberg, C.B. Singh, E. Nakar  
 “The structure of weakly-magnetized  $\gamma$ -ray burst jets”, MNRAS, 498, 3320 (2020);  
<https://doi.org/10.1093/mnras/staa2567>.
  7. **O. Gottlieb**, A. Levinson, E. Nakar  
 “Intermittent hydrodynamic jets in collapsars do not produce GRBs”, MNRAS, 495,  
 570 (2020); <https://doi.org/10.1093/mnras/staa1216>.
  6. **O. Gottlieb**, A. Loeb  
 “Electromagnetic signals from the decay of free neutrons in the first hours of neu-  
 tron star mergers”, MNRAS, 493, 1753 (2020); <https://doi.org/10.1093/mnras/staa363>.
  5. **O. Gottlieb**, A. Levinson, E. Nakar  
 “High efficiency photospheric emission entailed by formation of a collimation shock in  
 gamma-ray bursts”, MNRAS, 488, 1416 (2019); <https://doi.org/10.1093/mnras/stz1828>.
  4. **O. Gottlieb**, E. Nakar, T. Piran  
 “Detectability of neutron star merger afterglows”, MNRAS, 488, 2405 (2019), <https://doi.org/10.1093/mnras/stz1906>.
  3. K. P. Mooley\*, A. T. Deller\*, **O. Gottlieb\***, E. Nakar, G. Hallinan, S. Bourke, D.  
 A. Frail, A. Horesh, A. Corsi, K. Hotokezaka  
**\*Contributed equally**  
 “Superluminal motion of a relativistic jet in the neutron star merger GW170817”,  
 Nature, 561, 355 (2018); <https://www.nature.com/articles/s41586-018-0486-3>.  
**200+** Citations.
  2. **O. Gottlieb**, E. Nakar, T. Piran, K. Hotokezaka  
 “A cocoon shock breakout as the origin of the  $\gamma$ -ray emission in GW170817”, MNRAS,  
 479, 588 (2018); <https://doi.org/10.1093/mnras/sty1462>. **100+** Citations.
  1. **O. Gottlieb**, E. Nakar, T. Piran  
 “The cocoon emission - an electromagnetic counterpart to gravitational waves from  
 neutron star mergers”, MNRAS, 473, 576 (2018); <https://doi.org/10.1093/mnras/stx2357>. **100+** Citations.
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7. A. Hajela, R. Margutti, J. S. Bright, K. D. Alexander, B. D. Metzger, V. Nedora, A.  
 Kathirgammaraju, B. Margalit, D. Radice, E. Berger, A. MacFadyen, D. Giannios, R.  
 Chornock, I. Heywood, L. Sironi, **O. Gottlieb**, and 20 coauthors  
 “The emergence of a new source of X-rays from the binary neutron star merger  
 GW170817”; <https://arxiv.org/abs/2104.02070>
  6. K. Hotokezaka, E. Nakar, **O. Gottlieb**, S. Nissanke, K. Masuda, G. Hallinan, K. P.  
 Mooley, A. T. Deller  
 “A Hubble constant measurement from superluminal motion of the jet in GW170817”,

CO-AUTHOR  
PUBLICATIONS

Nature Astronomy, 3, 940 (2019); <http://www.nature.com/articles/s41550-019-0820-1>. **100+** Citations.

5. E. Nakar, **O. Gottlieb**, T. Piran, M. Kasliwal, G. Hallinan  
“From  $\gamma$  to radio - The electromagnetic counterpart of GW170817”, ApJ, 867, 18 (2018); <https://doi.org/10.3847/1538-4357/aae205>. **50+** Citations.
4. K. P. Mooley, E. Nakar, K. Hotokezaka, G. Hallinan, A. Corsi, D. A. Frail, A. Horesh, T. Murphy, E. Lenc, D. L. Kaplan, K. De, D. Dobie, P. Chandra, A. T. Deller, **O. Gottlieb**, M. M. Kasliwal, S. R. Kulkarni, S. T. Myers, S. Nissanke, T. Piran, C. Lynch, V. Bhalerao, S. Bourke, K. W. Bannister, L. P. Singer  
“A mildly relativistic wide-angle outflow in the neutron star merger GW170817”, Nature, 554, 207 (2018); <https://www.nature.com/articles/nature25452>. **200+** Citations.
3. O. Bromberg, A. Tchekhovskoy, **O. Gottlieb**, E. Nakar, T. Piran  
“The gamma-rays that accompanied GW170817 and the observational signature of a magnetic jet breaking out of NS merger ejecta”, MNRAS, 475, 2971 (2018); <https://doi.org/10.1093/mnras/stx3316>. **50+** Citations.
2. M. M. Kasliwal, E. Nakar, L. P. Singer, D. L. Kaplan, D. O. Cook, A. Van Sistine, R. M. Lau, C. Fremling, **O. Gottlieb**, and 72 coauthors  
“Illuminating Gravitational Waves: A Concordant Picture of Photons from a Neutron Star Merger”, Science, 358, 1559 (2017); <http://dx.doi.org/10.1126/science.aap9455>. **300+** Citations.
1. R. Harrison, **O. Gottlieb**, E. Nakar  
“Numerically calibrated model for propagation of a relativistic unmagnetized jet in dense media”, MNRAS, 477, 2128 (2018); <https://doi.org/10.1093/mnras/sty760>.

JOURNAL  
REVIEWER

- Astronomy & Astrophysics
- Monthly Notices of the Royal Astronomical Society
- The Astrophysical Journal

CONFERENCE  
TALKS

- *The HI 21cm Gas Profile in the Dwarf Galaxy Leo T*
  - National Israeli Astronomy Seminar Day, Hebrew University, Israel, February 2016
- *Cocoon Emission from Long Gamma-ray Bursts*
  - “Eighth Huntsville Gamma-Ray Burst Symposium”, Huntsville, AL, USA, October 2016
  - 2016 Israel Physical Society Conference, Tel Aviv University, Israel, December 2016
  - National Israeli Astronomy Seminar Day, Tel Aviv University, Israel, January 2017
- *The cocoon emission: an electromagnetic counterpart to GW from NS mergers*
  - “High-Energy Phenomena in Relativistic Outflows VI”, Space Research Institute of Moscow, Russia, September 2017
- *Lessons from GW170817 about relativistic outflows in NS mergers*
  - TeV Particle Astrophysics 2018, **invited talk**, Langenbeck-Virchow-Haus, Berlin, Germany, August 2018

*The detectability of Neutron Star Merger Afterglows*

- GRBs and Related Astrophysics in Multi-Messenger Era, Nanjing University, Nanjing, China, May 2019
- FOE19 Fifty-one Erg, North Carolina State University, Raleigh, NC, USA, May 2019

*The structure of hydrodynamic GRB jets*

- High Energy Astrophysics Japan Israel Workshop, **invited talk**, RIKEN, Tokyo & Kobe, Japan, July 2019

*Intermittent mildly magnetized jets as the source of GRBs*

- 43rd COSPAR Scientific Assembly, **invited talk**, Sydney, Australia, January 2021

*Probing the launching mechanism from prompt emission of GRBs*

- 2021 Israel Physical Society Conference, **invited talk**, Nuclear Research Center Negev, Israel, February 2021
- Sixteenth Marcel Grossmann Meeting, **invited talk**, Rome, Italy, July 2021

SEMINAR TALKS

- Astrophysics Seminar, Tel Aviv University, Tel Aviv - November 2015
- High Energy Astrophysics Seminar, The Hebrew University, Jerusalem - June 2017
- Astrophysics seminar, Caltech, CA, USA - August 2018
- KITP seminar, University of California, Santa Barbara, California, USA - August 2018
- Technion, Haifa, Israel - February 2019
- ITC seminar, CfA, Harvard University, Cambridge, MA, USA - September 2019
- BBL seminar, MIT, Cambridge, MA, USA - September 2019
- LIGO Group seminar, MIT, Cambridge, MA, USA - September 2019
- Compact Objects group, Center for Computational Astrophysics, Flatiron, SIMONS, New York, NY, USA - September 2019
- Astroplasma group, Princeton University, Princeton, NY, USA - September 2019
- Astrophysics seminar, NYU, New York, NY, USA - September 2019
- Astrophysics seminar, Columbia University, New York, NY, USA - September 2019
- High Energy group, University of Chicago, Chicago, IL, USA - September 2019
- Astrophysics seminar, Northwestern University, Evanston, IL, USA - October 2019
- Astrophysics seminar, UC Los Angeles, Los Angeles, CA, USA - October 2019
- Theory group, Carnegie Observatory, Pasadena, CA, USA - October 2019
- TAPIR seminar, Caltech, Pasadena, CA, USA - October 2019
- Special Seminar, UC Santa Cruz, Santa Cruz, CA, USA - October 2019
- Tea talk, Stanford University, Stanford, CA, USA - October 2019
- Theoretical Astrophysics seminar, UC Berkeley, Berkeley, CA, USA - October 2019
- Theoretical Astroparticle Physics seminar, DESY Zeuthen, Berlin, Germany, April 2021
- High-energy seminar, Institut d'Astrophysique de Paris, Paris, France, May 2021

TEACHING  
EXPERIENCE

- 2014-2015: Instructor in first year undergraduate physics teaching laboratories.
- 2015-2020: Instructor in second year undergraduate physics teaching laboratories.
- 2016: Developer of the Dark Matter experiment in second year physics undergraduate physics teaching laboratories.

- 2016-2020: Teaching Assistant  
"General Physics B1" - undergraduate course for chemistry and geophysics majors.
- 2018-2019: Teaching Assistant  
"Introduction to Astrophysics" - undergraduate course for physics majors.

OUTREACH  
ACTIVITY

- 2011 - 2018: Tel Aviv University Astronomy Club ("TAU AstroClub")  
Taking part in monthly public lectures, guided night sky observations, observatory "open house" evenings, and other outreach activities.
- 2011 - 2016: Perach  
Science education in elementary schools, including special education.  
Technion excelling mentor.
- 2014 - 2015: Netivim to the univeristy  
Science education in high schools.
- 2014 - 2021: Science-oriented-youth program in Tel Aviv University  
Half day seminars in selected topics in physics and astrophysics to middle- and high-school classes.  
Physics and astrophysics full semester courses to middle- and high-school kids.

MILITARY  
SERVICE

Israel Defense Forces, 2004-2007.  
Rank: Staff sergeant, Signal Corps. Division excelling recruit.