

SARAH LIBANORE

Postdoctoral Fellow

Keywords:

Observational Cosmology
Large-scale structure of the Universe
Intergalactic Medium

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github.com/slibanore

https://slibanore.github.io

RESEARCH INTERESTS

Postdoctoral researcher in astrophysics and cosmology, focused on new observables and cross-correlations. Currently working on line-intensity mapping to study the epoch of reionization and cosmic dawn, with past experience in gravitational waves and large-scale structure tracers. Passionate about teaching, mentoring students, collaborative research, and outreach.

EDUCATION

University of Padova
09.2018 - 05.2022

Ph.D. in Physics

Advisors: Prof. Michele Liguori, Prof. Alvise Raccanelli
Thesis: *The importance of clustering analysis in future GW surveys*

University of Padova
09.2016 - 09.2018

Master degree in Astronomy (110/110 cum laude)

Advisors: Prof. Michele Liguori, Prof. Nicola Bartolo
Thesis: *Gravitational Wave detections: implications for Cosmology*

University of Padova
09.2013 - 09.2016

Bachelor degree in Astronomy (110/110 cum laude)

Advisor: Prof. Sabino Matarrese

PROFESSIONAL EXPERIENCE

Ben Gurion University
01.2023 - ongoing

Azrieli International Postdoctoral Fellow

Advisor: Prof. Ely D. Kovetz
Research Experience: line intensity mapping, simulation and forecast of 21-cm and star forming lines in the context of current surveys

University of Padova
03.2022 - 12.2022

Assegno di Ricerca Pre-Dottorato

Advisor: Prof. Michele Liguori

GRANTS & AWARDS

- **BGU/Philadelphia academic bridge grant** (2025, co-PI with Profs. A. Lidz, E. Kovetz)
- **Balzan award**, held by Center for Cosmological Studies (2023, research visiting to JHU)
- **Azrieli International Postdoctoral Fellowship program** (2022)
- **Fondazione Aldo Gini scholarship** (2022)
- **PhD Sandwich Scholarship**, held by Council for Higher Education in Israel (2022)
- **Mille e una Lode**, held by University of Padova (2016)

TEACHING & MENTORING

- **Tutorial** on “21cmFirstCLASS” (Santander, Spain, February 2025)
- **Assistant Lecturer** for “Cosmic Tensions” Ph.D. course (GGI school, Italy, March 2023)
- **Mentor of Ph.D. and Master students in their research projects**

CURRENT

K. Finish (PhD, fnl effect on 21-cm at EoR)
T. Kadosh (MsC, island model of EoR)
K. Krochek (MsC, SMBH mass function across z)
P. T. Ursino (MsC, fnl effect on GW surveys)

PAST (5 papers)

T. Adi (PhD, primordial magnetic fields and LIM)
J. Flitter (PhD, 21-cm during the EoR)
G. Shmueli (MsC, neutrino masses and LIM)
M. Peron (MsC, bias of GW mergers)

COLLABORATIONS & MEMBERSHIPS

- Square Kilometer Array Observatory (SKAO)
- International Astronomical Union (IAU)
- European Consortium for Astroparticle Theory (EUCAPT)
- ULTRASAT
- COMAP

REFERENCES

- **Ely D. Kovetz**
Ben Gurion University
kovetz@bgu.ac.il
- **Julian B. Muñoz**
University of Texas, Austin
julianbmunoz@utexas.edu
- **Michele Liguori**
Università degli studi di Padova
michele.liguori@unipd.it
- **Alvise Raccanelli**
Università degli studi di Padova
alvise.raccanelli.1@unipd.it

OUTREACH & DISSEMINATION

[PLaNCK! magazine](#)
2016 - ongoing

Editorial Board of science magazine for children

Article writing and editing
Collaboration in public relations and social media management

[APS Accatagliato](#)
2016 - ongoing

Outreach activities tailored to diverse audiences

Planning, design, and implementation of workshops, festivals, and events
Science trainer & educator in schools, workshops, professional internships
Back-office support activities

[Professione... Scienza](#)
2019-2021

Educational Game

I collaborated in the development of educational game cards designed to engage young people with the work and role of scientists in scientific and societal progress. The cards were created with a focus on diversity and inclusion across gender, ethnicity, disability.

[Penne di Scienza](#)
2024 - ongoing

Correspondence with school classes

Engaged with teenagers via letters and online meetings to foster science communication and provide role modeling

LANGUAGES



LIST OF PUBLICATIONS

UNDER REVIEW

- E. Th  lie, **S. Libanore**, Y. Sklasnky, J.B. Mu  oz, E.D. Kovetz (2026)
arXiv:2602.12277 (submitted to Phys. Rev. Lett.) - *Reionization Bubbles from Real-Space Cross Correlations of Line Intensity Maps*
- **S. Libanore**, E.D. Kovetz, J.B. Mu  oz, Y. Sklasnky, E. Th  lie (2025)
arXiv:2509.08886 (submitted to Phys. Rev. D.) - *A New Boundary Condition on Reionization*
- M. Bosi, **S. Libanore**, N. Bellomo, et al. (2025)
(internally submitted to SKAO) - *Chapter in Advancing Astrophysics with the SKA - II: Using SKAO to understand the clustering of gravitational wave sources*
- D. Sarkar et al. (including **S. Libanore**) (2025)
(internally submitted to SKAO) - *Chapter in Advancing Astrophysics with the SKA - II: Cosmology with Multi-Wavelength Line Intensity Mapping Synergies in the SKAO Era*
- S. Majumdar et al. (including **S. Libanore**) (2025)
(internally submitted to SKAO) - *Chapter in Advancing Astrophysics with the SKA - II: Cosmology with Intensity Mapping via statistics beyond the power spectrum in the SKAO Era*

PUBLISHED

- 14. S. Libanore**, J.B. Mu  oz, E.D. Kovetz (2025)
Phys. Rev. D 112, 083552 (2025), arXiv 2507.15922 - *Effective model for line intensity mapping: Auto- and cross-power spectra in the cosmic dawn and reionization*
- 13. S. Libanore**, S. Ghosh, E.D. Kovetz, K.B. Body, A. Raccanelli (2025)
Phys. Rev. D 112, 063502 (2025), arXiv:2504.15348 - *Joint 21-cm and CMB Forecasts for Constraining Self-Interacting Massive Neutrinos*
- 12. G. Shmueli, S. Libanore**, E.D. Kovetz (2024)
Phys. Rev. D 111 063512 (2025), arXiv:2412.04071 - *Towards a multi-tracer neutrino mass measurement with line-intensity mapping*
- 11. J. Flitter, S. Libanore**, E.D. Kovetz (2024)
Phys.Rev.D 112 023537 (2025), arXiv:2412.04071 - *More careful treatment of matter density fluctuations in 21-cm simulations*
- 10. E. Vanzan, S. Libanore**, L. Valbulsa Dall'Armi, N. Bellomo, A. Raccanelli (2024)
JCAP 10 014 (2024), arXiv:2405.13871 - *Gravitational wave background from primordial black holes in globular clusters*
- 9. S. Libanore**, E.D. Kovetz (2024)
Phys. Rev. D 111 063521 (2024), arXiv:2404.01500 - *Upcoming searches for decaying dark matter with ULTRASAT ultraviolet maps*
- 8. S. Libanore**, E.D. Kovetz (2024)
A&A 687, A133 (2024), arXiv:2401.12285 - *Constraining $z < 2$ ultraviolet emission with the upcoming ULTRASAT satellite*
- 7. S. Libanore**, J. Flitter, E.D. Kovetz, Z. Li, A. Dekel (2023)
MNRAS 532 1 (2024), arXiv:2310.03021 - *Effects of feedback-free starburst galaxies on the 21-cm signal and reionization history*
- 6. S. Libanore**, M. Liguori, A. Raccanelli (2023)
JCAP 08 055 (2023), arXiv:2306.03087 - *Signatures of primordial black holes in gravitational wave clustering*
- 5. M. Peron, A. Ravenni, S. Libanore**, M. Liguori, M.C. Artale (2023)
MNRAS 530 1 (2024), arXiv:2305.18003 - *Clustering of binary black hole mergers: a detailed analysis of the EAGLE+MOBSE simulation*

FIND MY WORK
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4. T. Adi, **S. Libanore**, H.A. Cruz, E.D. Kovetz (**2023**)
JCAP 09 035 (2023), [arXiv:2305.06440](#) - *Constraining Primordial Magnetic Fields with Line-Intensity Mapping*
3. **S. Libanore**, C. Unal, D. Sarkar, E.D. Kovetz (**2022**)
Phys. Rev. D 106 123512 (2022), [arXiv:2208.01658](#) - *Unveiling cosmological information on small scales with line intensity mapping*
2. **S. Libanore**, M.C. Artale, M. Liguori, M. Mapelli et al. (**2021**)
JCAP 02 003 (2022), [arXiv:2109.10857](#) - *Clustering of Gravitational Wave and Supernovae events: a multitracers analysis in Luminosity Distance Space*
1. **S. Libanore**, M.C. Artale, M. Liguori, M. Mapelli et al. (**2020**)
JCAP 02 035 (2021), [arXiv:2007.06905](#) - *Gravitational Wave mergers as tracers of Large Scale Structures*

TALKS & SEMINARS

- Dark Sector Meeting (Jet Propulsion Laboratory, November 2025)
- Cosmology Journal Club (Caltech, November 2025)
- Cosmology Group Meeting (University of Harvard, November 2025)
- Annual meeting of the Israeli Physical Society (Technion, July 2025)
- LIM 2025 (Annecy, June 2025)
- Cosmic Frontier Center Discussions (Austin, May 2025)
- SUBLIME meeting (Tokyo, March 2025)
- Astrophysics Seminar (Santander, February 2025)
- 21 cm Cosmology Workshop (Hangzhou, July 2024)
- LIM 2024 (Urbana Champaign, May 2024)
- Astrophysics Seminar (Weizmann Institute, April 2024)
- Cosmology in the Alps (Les Diablerets, March 2024)
- Astrophysics Seminar (Bar Ilan University, February 2024)
- Astrophysics Seminar (Scuola Normale Superiore di Pisa, November 2023)
- HI as a Cosmological probe (Nazareth, May 2023)
- Present and Future of LIM (Garching, April 2023)
- Annual meeting of the Israeli Physical Society (Tel Aviv, April 2023)
- Cosmology Journal Club (Padova, November 2022)
- Asiago Cosmology Group Retreat (Asiago, September 2022)
- ICTP Cosmology Summer School (Trieste, July 2022)
- Astrophysics Seminar (Ben Gurion University, March 2022)
- Gravitational Wave day @ Unipd (Padova, December 2021)
- AstroParticle Symposium 2021 (Saclay, November 2021)
- CosmoClassic (online, September 2021)
- SKAStle (Tagliolo Monferrato, September 2021)
- First EuCAPT Annual Symposium (online, May 2021)
- IberiCOS 2021 (online, March 2021)
- University of the Western Cape Astro webinar (online, January 2021)
- CosmoMeetings at Universidade de São Paulo (online, July 2020)
- Cosmology Journal Club (Padova, June 2020)

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