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Research Interests

Galaxy formation	Circumgalactic medium	Galactic feedback
Gas accretion	Plasma physics	Cosmological simulations

Education

2021 – . . .  **Ph.D. Tel-Aviv University.** Advisor: Prof. Amiel Sternberg.
Spectroscopy of the Circumgalactic Medium (CGM), Theory and Simulation
Expected graduation in 2027.

2019 – 2021  **M.Sc. Tel-Aviv University,** Astrophysics.

2015 – 2019  **B.Sc. Tel-Aviv University,** Physics & Electrical Engineering (dual degree).

Research Publications

Published

- 1 **Y. Oren**, A. Sternberg, C. F. McKee, and Y. Faerman, “Highly Ionized Oxygen in the Circumgalactic Medium of TNG100 Galaxies: Distributions, Thermal States, and Ionization Mechanisms,” *arXiv e-prints*, Oct. 2026. arXiv: 2609.15298 [astro-ph.GA].
- 2 O. Omoruyi, B. Terrazas, **Y. Oren**, A. Gabrielpillai, V. Pandya, R. S. Somerville, A. Sternberg, and L. Hernquist, “TNG SAM: Bridging Hydrodynamical Complexity and Semianalytic Efficiency to Model Galaxy Formation,” *ApJ*, vol. 1008, no. 2, 164, p. 164, Sep. 2026.  DOI: 10.3847/1538-4357/ae879e.
- 3 **Y. Oren**, V. Pandya, R. S. Somerville, S. Genel, O. Omoruyi, and A. Sternberg, “The Cosmic Baryon Cycle in IllustrisTNG: Flows of Mass, Energy, and Metals,” *ApJ*, vol. 999, no. 2, 259, p. 259, Mar. 2026.  DOI: 10.3847/1538-4357/ae41bc.
- 4 **Y. Oren**, A. Sternberg, C. F. McKee, Y. Faerman, and S. Genel, “Sunyaev–Zeldovich Signals from L^* Galaxies: Observations, Analytics, and Simulations,” *ApJ*, vol. 974, no. 2, 291, p. 291, Oct. 2024.  DOI: 10.3847/1538-4357/ad6f08.

In Preparation

- 1 **Y. Oren**, “The thermal Sunyaev Zeldovich signal as a probe for AGN feedback”.
- 2 K. Blum, Y. Faerman, **Y. Oren**, and L. Teodori, “Circumgalactic gas as a mass-sheet degeneracy for gravitational lensing cosmography”.

Conferences

Invited Talks

2026  **AGN & Energy Flows Workshop, CCA:** *Using tSZ to probe AGN feedback in CAMELS.*

2024  **McKee24 Conference, UC Berkeley.:** *Sunyaev–Zeldovich Signals from L^* Galaxies: Observations, Analytics, and Simulations.*

Contributed Talks

2025  **Modelling of Multiphase Astrophysical Media, Ringberg Castle:** *Sunyaev–Zeldovich Signals from L^* Galaxies: Observations, Analytics, and Simulations.*

Conferences (continued)

- 2024
- mm Universe 2025, KICP, UChi.: *Sunyaev–Zeldovich Signals from L^* Galaxies: Observations, Analytics, and Simulations.*
 - The 69th Annual Meeting of the IPS, Israel.: *Sunyaev–Zeldovich Signals from L^* Galaxies: Observations, Analytics, and Simulations.*

Participant

- 2023
- The 68th Annual Meeting of the IPS, Israel.

Employment & Teaching

- 2023 – 2027
- Teaching Assistant, Tel-Aviv University.**
Head instructor, Physics Lab B: In charge of roughly 20 instructors, 20 experiments, and 200 students; introducing, constructing, and testing new experiments; maintaining pedagogical consistency across experiments and instructors; building and maintaining the full experiment-by-experiment schedule.
- 2019 – 2023
- Teaching Assistant, Tel-Aviv University.**
Lab instructor, Physics Lab B: Teaching teams of students the physical and technical aspects of experiments on galaxy classification, dark matter, blackbody radiation, and Fourier optics; maintaining and upgrading experiments and their associated equipment.
- 2017 – 2027
- Research Assistant, Tel-Aviv University.**
Galaxy Evolution group with Prof. Amiel Sternberg.

Honors and Awards

- 2025
- Excellence in teaching and research (School of Physics and Astronomy, Tel-Aviv University).
- 2024
- Excellence in teaching (School of Physics and Astronomy, Tel-Aviv University).
- 2021
- Excellence in teaching and research (School of Physics and Astronomy, Tel-Aviv University).
- 2018
- Excellence Program for outstanding undergraduate physics students.

Public Outreach

- 2021 – . . .
- TAU Astroclub:**  tauastroclub.com
Coordinating bi-monthly public lectures by local and international research astrophysicists.
Organizing and participating in amateur telescope observations in the streets of Tel-Aviv.
Managing social media.
Organizing and participating in open days at the Wise Observatory.
Writing and giving science talks in organized events (for crowds of roughly 100 people).