

Curriculum Vitae

Erez Michaely

Personal details

Phone: +12403302216

E-Mail: erezmichaely@gmail.com

Homepage: www.erezmichaely.com

Research interests

Stellar and planetary dynamics, which including triple systems, Solar system dynamics, collisional dynamics in low/high-density environments. Gravitational wave sources. Stellar collisions.

Education

PhD	TECHNION – Israel Institute of Technology, Dep. of Physics Thesis: “Triple Stellar Dynamics and Evolution and Topics in Astrophysics”. Academic advisor: Prof. Hagai B. Perets	2012-2018
MSc	TECHNION – Israel Institute of Technology, Dep. of Physics Academic advisor: Prof. Shmuel Fishman	2009-2012
BSc	TECHNION – Israel Institute of Technology, Dep. of Physics	2005-2009

Positions

Bhaumik fellow	University of California, Los Angeles. Dep. of Physics and Astronomy	2021- Present
CTC-Prize fellow	University of Maryland, College Park, USA. Center for Theory and Computation.	2018-2021

Honors and Awards

2021	Bhaumik fellowship (Bhaumik institute for theoretical physics, UCLA)
2020	Outstanding postdoctoral fellow (from the Astronomy department of U. of Maryland)
2018	CTC prize-fellowship (from the Astronomy department of U. of Maryland)
2013	Wiseman/ Jaknao exceptional TA award (highest Technion teaching award)
2012	Permanent Excellent tutor prize – Semester A (from the Technion) (The Technion does not allow for more than 5 excellent tutor awards)
2011	Permanent Excellent tutor prize – Semester A (from the Technion) Permanent Excellent tutor prize – Semester B (from the Technion)
2010	Excellent tutor prize – Semester A (from the Technion) Excellent tutor prize – Semester B (from the Technion)

Mentoring

- 2023 Grad research project, **Zeyuan Xuan**, UCLA, (Xuan et al. 2023)
- 2023 Undergraduate research project, **Brayan Hernandez**, UCLA (Hernandez et al. In prep.)
- 2022 Grad research project, **Yael Raveh**, Technion (Ravel et al. 2022)
- 2020 Undergraduate project, **Logan Wood, Ben Johnson, Dylan Britt**, UMD / Stanford (Britt et al. 2021)
- 2017 Undergraduate project, **Dani Lipman**, University of Iowa
- 2016 Graduate research project, **Dimitri Ginzburg**, Technion
- 2014 Undergraduate project, **Rotem Liss**, Technion

Academic Service

- Referee Frequent referee for Nature, Astrophysical Journal (Apj) letter, Apj, MNRAS letters, MNRAS , AA
- Panelist **ATP 2019 panel (NASA)**
- Reviewer **FINESST 2019 (NASA)**

Teaching

- 2023 **Guest Lecture, UCLA: Physics 105A, Analytical mechanics**
- 2022 **Guest Lecture, UCLA: Astro 270, Astro dynamics**
- 2010-2017 **Teaching assistant:** Physics 1m (for physicists), Physics 2m (for physicists) Physics 2, in the international school (teaching in English). *Analytical mechanics* (for physicists), *Statistical mechanics* (for physicists), *introduction to General Relativity* (Graduate course), *introduction to Astrophysics and Cosmology*.
- 2009-2010 **Lab instructor:** Mechanics, E&M.

Visiting scientist

- 2016 Harvard, ITC, Hosted by Prof. A. Loeb, (June)
UCSB, Hosted by Prof. R. Murray-Clay, (January)
- 2015 Leiden University , Hosted by Prof. S. Portegies Zwart (February)

Conferences (conference presentations)

- 2023 Exte black-holes, Aspen, CO
- 2022 NBIA Workshop on Black Hole dynamics
- 2020 235th AAS meeting, Honolulu, Hawai'i
- 2019 JSI Workshop, The New Faces of Black Holes, Annapolis, MD
- 2019 50th annual meeting DDA, Boulder, Colorado, USA
- 2017 Planetary systems beyond the main sequence, Technion, Haifa, Israel
- 2016 Stellar remnants at the Junction, Junction, TX, USA
Binary stars in Cambridge, Cambridge, England
- 2015 TRENDY, triple systems, Technion, Haifa, Israel
The impact of massive binaries ,Lorentz center, Leiden, Netherlands
- 2014 Stellar Tango at the Rockies, Alberta, Canada
Binary systems, their evolution and environments, Ulan Bator, Mongolia

2013 GRAVASCO, Institute Henri Poincare, Paris, France

Seminars

- 2022 Collisional dynamics of wide systems in the field, Ohio State University (Invited)
Collisional dynamics of wide systems in the field source for GW signals, Northwestern University
Collisional dynamics of wide systems in the field, Harvard University
Collisional dynamics of wide systems in the field, University of Columbia
Collisional dynamics of wide systems in the field , Technion, Israel
- 2021 Collisional dynamics in the field, UConn, USA
- 2021 Colloquium – University of Maryland, College Park
- 2020 Colloquium – open university Israel (OUI)
- 2019 Binary-BH mergers in the field, Virginia Tech, VA, USA (Invited)
- 2018 Collisional dynamics and Binary-BH mergers, UBG, Israel
Collisional dynamics and Binary-BH mergers, UMD, USA
- 2017 Collisional dynamics in the field, PhD seminar, Technion
- 2016 Hot and Warm Jupiters in the Pre-MS phase, UC-Berkeley
Collisional dynamics in the field, CfA
Collisional dynamics in the field, University of Columbia
Collisional dynamics in the field, Princeton
Collisional dynamics in the field, Caltech
Low-Mass X-ray binary formation, UCLA (Invited)
Low-Mass X-ray binary formation, Huji University (Invited)
- 2012 Effective noise theory of the none-linear Schrödinger equation with random potential, Master seminar, Technion.

Departmental Activities

- 2018-2020 CTC – weekly theory seminar, UMD
- 2017 LOC of the Planetary systems beyond the main sequence conference, Technion
- 2015 LOC of the TRENDY conference, Technion
- 2012-2015 Organizing the weekly journal club, Astrophysics group, Technion

Other Noteworthy Activities

Volunteer work: Regularly lectures in high schools, mid schools and elementary schools on physics, science and mathematics, emphasizing the importance of women in science.

Lectures in the undergraduates science clubs.

Mentoring gifted high-school pupils on celestial dynamics for a high school project.

A special mentor in the presidential program for high-school student in Israel.

Teaching physics and mathematics individuals from under representative groups in Israel via zoom.

Creating and filming the introduction to Cosmology part of Astrophysics 101 course in the Technion, as part of a flipped class.

Publications list

† papers led by students which I mentored

22) 2023: “New Dynamical channel’: wide Binaries in the Galactic Center as a source of Binary Interactions.” **Michaely** and Naoz. Submitted:ApJ Letters, arXiv: 2310.02558v1

21) 2023: “Detecting Gravitational Wave Bursts From Stellar-Mass Binaries in the Milli-hertz Band.” Xuan, Naoz, Kocsis and **Michaely**. Submitted to: ApJ, arXiv: 2310.00042v1

20) †2023: “Dynamical Evolution of White Dwarf Triples in the Era of Gaia.” Shariat, Naoz, Hansen, Angelo, **Michaely** and Stephan. Journal: The Astrophysical Journal, Volume 955, Issue 1, id.1L14.

19) 2022: “Ultrawide Black Hole-Neutron Star Binaries as a Possible Source for Gravitational Waves and Short Gamma-Ray.” **Michaely** & Naoz Journal: The Astrophysical Journal, Volume 936, Issue 2, id.184, 9 pp.

18) †2022: “Detailed properties of gravitational-wave mergers from flyby perturbations of wide binary black holes in the field.” Raveh, **Michaely** and Perets. Journal: Monthly Notices of the Royal Astronomical Society, Volume 514, Issue 3, pp.4246-4258

17) 2022 : “The Combined Effects of Two-body Relaxation Processes and the Eccentric Kozai-Lidov Mechanism on the Extreme-mass-ratio Inspirals Rate.” Naoz, Rose, **Michaely**, Melchor, Ramirez-Ruiz, Mockler and Schnittman. Journal: The Astrophysical Journal Letters, Volume 927, Issue 1, id.L18, 11 pp.

16) †2021 : “binary black hole mergers from hierarchical triples in open clusters.” Britt, Johanson, Wood, Miller & **Michaely** . Journal: Monthly Notices of the Royal Astronomical Society, Volume 505, Issue 3, pp.3844-3852

15) 2021 : “White dwarf - main sequence star collisions from wide triples in the field.” **Michaely** & Shara. Journal: Monthly Notices of the Royal Astronomical Society, Volume 502, Issue 3, pp.4540-4546

14) 2021 : “Type Ia supernovae from wide white-dwarfs triples.” **Michaely, E.** Journal: Monthly Notices of the Royal Astronomical Society, Volume 500, Issue 4, pp.5543-5551

13) 2020 : “High rate of gravitational waves mergers from flyby perturbations of wide black-hole triples in the field.” **Michaely** and Perets. Journal: Monthly Notices of the Royal Astronomical Society, Volume 498, Issue 4, pp.4924-4935

12) 2020 : “Solar luminosity bound on mirror matter.” **Michaely** et al. Journal: Physical Review D, vol. 101, Issue 12, id. 123006

11) 2020 : “Inferred timescales for common envelope ejection using wide astrometric companions.” Igoshev, Perets and **Michaely**. Journal: Monthly Notices of the Royal Astronomical Society, Volume 494, Issue 1, pp.1448-1462

10) 2019 : “Gravitational waves sources from mergers of binary black-holes catalyzed by fly-bys interaction in the field.” **Michaely** & Perets. Journal: The Astrophysical Journal letter, Volume 887, Issue 2, article id. L36, pp. (2019).

9) 2019: “Constraints on the common-envelope evolution process from wide triple systems.” **Michaely** & Perets. Journal: Monthly Notices of the Royal Astronomical Society, Vol. 484, Issue 4, p. 4711-4717

8) 2018 : “The demographics if neutron star-white dwarf mergers. Rates, delay-time distributions, and progenitors.” Toonen, Perets, Igoshev, **Michaely**, Zenati. Journal: Astronomy&Astrophysics, Volume 619, A53.

7) 2018 : “Supermova and prompt gravitational-wave precursors to LIGO gravitational-wave sources and short-GRBs.” **Michaely** & Perets. Journal: The Astrophysical Journal letter, Volume 855, Issue 1, article id. L12, 6 pp (2018)

6) 2017 :” On the existence of regular and irregular outer moons orbiting the Pluto-Charon system.” **Michaely** et. al. Journal: The Astrophysical Journal, Volume 836, Issue 1, article id. 27, 7 pp (2017)

5) 2017 : “Generalized Hill-stability criteria for hierarchical three-body systems at arbitrary inclinations.” Grishin, Perets, Zinati and **Michaely**. Journal: Monthly Notices of the Royal Astronomical Society, Vol. 466, Issue 1, p. 276-285

4) 2016 : “Tidal capture formation of low-mass X-ray binaries from wide binaries in the field.” **Michaely** and Perets. Journal: Monthly Notices of the Royal Astronomical Society, Vol. 458, Issue 4, p. 4188-4197

3) 2014 : “Secular dynamics in hierarchical three-body systems with mass loss and mass transfer.” **Michaely** & Perets. Journal: The Astrophysical Journal, Volume 792, Issue 2, article id. 122, 12 pp (2014)

2) 2012 : “Statistical properties of the one dimensional Anderson model relevant for the nonlinear Schrodinger equation in a random potential.” **Michaely** & Fishman. Journal: The European Physical Journal B, Vol. 85, Issue 11, id. 362, 10 pp (2012)

1) 2012 : “Effective noise theory for the nonlinear Schrodinger equation with disorder.” **Michaely** & Fishman. Journal: Physical Review E, vol. 85, Issue 4, id. 046218 (2012)

