

Nimrod Gavriel (Elkayam)

24/08/1989

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Education

- 2020-current **Ph.D. Candidate, Weizmann Institute of Science** in Planetary and Earth Sciences
Under the supervision of Prof. Yohai Kaspi.
Research subject: *Vortices and jet dynamics on the giant planets*
- 2017 – 2019 **M.Sc., Technion - Israel Institute of Technology** in Energy Engineering.
Under the supervision of Assoc. Prof. Guy Ramon.
Thesis title: *Adsorption-Mediated Mixture Separation by an Acoustic Field*.
Graduated *summa cum laude*
Supported by a scholarship from the Israel Ministry of Energy
- 2013 – 2017 **B.Sc., Technion - Israel Institute of Technology** in Civil and Environmental Engineering.
Graduated *summa cum laude*

Fellowships and Awards

- 2023 **GFD Fellow at Woods Hole Oceanographic Institution**
- 2021 **Pearlman prize for student-initiated research**
- 2019 **M.Sc graduation - *summa cum laude***
- 2017-2019 **Full M.Sc research fellowship by the Israel Ministry of Energy**
- 2017 **B.Sc graduation - *summa cum laude***
- 2013-2017 **Five semesters under the Technion's President list of excellency, and one semester under the Dean's list of excellency.**

Research Publications

- 1 **Gavriel, N, & Kaspi, Y. (2023).** The westward drift of Jupiter's polar cyclones explained by a center-of-mass approach. *Geophysical Research Letters*. doi:10.1029/2023GL103635
- 2 Kaspi, Y., Galanti, E., Park, R., Duer, K., **Gavriel, N**, Durante, D., ... Bolton, S. (2023). Observational evidence for cylindrically oriented zonal flows on jupiter. *Nature Astronomy*. In press.
- 3 **Gavriel, N, & Kaspi, Y. (2022).** The oscillatory motion of Jupiter's polar cyclones results from vorticity dynamics. *Geophysical Research Letters*. doi:10.1029/2022GL098708
- 4 *Duer, K., ***Gavriel, N**, Galanti, E., Kaspi, Y., Fletcher, L. N., Guillot, T., ... Waite Jr., J. H. (2021). Evidence for multiple Ferrel-like cells on Jupiter. *Geophysical Research Letters*. *Equal contributors. doi:10.1029/2021GL095651
- 5 **Gavriel, N, & Kaspi, Y. (2021).** The number and location of Jupiter's circumpolar cyclones explained by vorticity dynamics. *Nature Geoscience*. doi:10.1038/s41561-021-00781-6
- 6 *Blayer, Y., ***Elkayam, N**, & Ramon, G. Z. (2019). Phase-dependence of sorption-induced mass streaming in an acoustic field. *Applied Physics Letters*. *Equal contributors. doi:10.1063/1.5110601

- 7 Offner, A., Yang, R., Felman, D., **Elkayam, N.**, Agnon, Y., & Ramon, G. Z. (2019). Acoustic oscillations driven by boundary mass exchange. *Journal of Fluid Mechanics*. doi:10.1017/jfm.2019.87

Publication (5) got the cover of Nat. Geosci. August 2021 issue

Conference Presentations




- Woods Hole GFD program 2023 (Woods Hole, Massachusetts), August 2023: "Can AI-based climate models learn rare, extreme weather events?"
- Europlanet Science Congress 2022 (Granada, Spain), September 2022: "The oscillatory motion of Jupiter's polar cyclones results from vorticity gradient forces."
- Juno's Prime Mission Results on Atmosphere, Interior and Origin workshop, (Pasadena, California), June 2022: "The oscillatory motion of Jupiter's polar cyclones results from vorticity gradient forces."
- 23rd Conference on Atmospheric and Oceanic Fluid Dynamics (Breckenridge, Colorado), June 2022: "Vorticity dynamics define the position and motion of Jupiter's polar cyclones."
- The EGU General Assembly 2022 (Vienna, Austria), May 2022: "The number and location of Jupiter's circumpolar cyclones explained by vorticity dynamics."
- GFD days 2022 (Sde Boker, Israel), April 2022, "The number and location of Jupiter's circumpolar cyclones explained by vorticity dynamics."
- Juno Atmospheric Working Group monthly meeting, January 14th, 2022: "The oscillatory motion of Jupiter's polar cyclones results from vorticity gradient forces."
- Mediterranean Cyclones: Dynamics, Impact and Prediction at Weather and Climate Scales conference, "The number and location of Jupiter's circumpolar cyclones explained by vorticity dynamics."
- Twelfth Moscow Solar System Symposium 12M-S3, October 14th, 2021: "The number and location of Jupiter's circumpolar cyclones explained by vorticity dynamics." [link](#)
- DPS 53d annual meeting, October 7th, 2021: "The number and location of Jupiter's circumpolar cyclones explained by vorticity dynamics." [link](#)
- NASA HQ Monthly Science Report - **invited guest speaker** of the planetary science division, September 30th, "The number and location of Jupiter's circumpolar cyclones explained by vorticity dynamics."
- Juno Atmospheric Working Group monthly meeting, September 14th, 2021: "The number and location of Jupiter's circumpolar cyclones explained by vorticity dynamics."

Employment History







2022 - today  **Teaching assistant**, Weizmann Institute of Science. TA in the courses:

- Planetary atmospheres, *Spring 2022* Earth and Planetary Sciences
- Atmospheric and oceanic fluid dynamics, *Fall 2022* Earth and Planetary Sciences

Employment History (continued)

- 2016 - 2019  **Teaching assistant**, Technion - Israel Institute of Technology. I gave tutorials for students in the courses:
- Introduction to engineering mechanics, Civil Engineering
 - Structural analysis, Civil Engineering
 - Introduction to environmental engineering, Civil Engineering
 - Quantitative thinking and statistics, Town Planning
- 2014 - 2017  **Personal tutoring**, The Beatrice Weston Unit for the Advancement of Students - at the Technion. I gave individual tutoring sessions for fellow undergraduate students who required additional help. The courses in which I tutored include: *Introduction to engineering mechanics, Structural analysis, Statistics, Physics 1 - (mechanics), Physics 2 - (Electricity), Differential and integral calculus, Geo-mechanics, Geology, C programming, Soil engineering, Fluid mechanics, Ordinary differential equations, Introduction to numerical methods* and more.
- 2016  **Research Assistance**, Technion - Israel Institute of Technology. Assisting in the research of Prof. Oded Amir from the faculty of Civil Engineering in developing optimization algorithms for structural designs.

Skills and Hobbies

- Languages  Hebrew; English; Spanish.
- Coding  Python; Shell; Matlab; Wolfram Mathematica; Maple; \LaTeX .
- Computer programs  Illustrator; Inkscape; Lyx; Obsidian.
- Music playing  Drums; guitar; keyboard.
- Sport  Sport climbing; running; swimming; Yoga.
- Misc.  Painting; graphic designing.