

CURRENT POSITION

Columbia University

Term Assistant Professor in Applied Mathematics

2019–Present

– Mentor: Prof. [Michael I. Weinstein](#)

EDUCATION

Tel Aviv University

Ph.D. in Applied Mathematics

2016–2019

– Mentors: Prof. [Gadi Fibich](#) and Prof. [Adi Ditkowski](#)

Tel Aviv University

M.Sc. in Applied Mathematics

2014–2016

– Mentors: Prof. [Gadi Fibich](#) and Prof. [Adi Ditkowski](#)

Hebrew University of Jerusalem

B.Sc. in Mathematics and Physics (“*Talpiot*” program)

2006–2009

PREVIOUS ACADEMIC AND PROFESSIONAL EXPERIENCE

Yale University

Visiting Graduate Student

2018–2019

Tel Aviv University

Junior Instructor and Teaching Assistant

2016–2018

Military Service

2009–2016

SCHOLARSHIPS AND AWARDS

- AMS-Simons Travel Grant (\$5,000) 07/21–07/23
- SIAM Early Career Travel Award (CSE21) 03/21
- SIAM Student Travel Award (CSE19) 02/19
- Israel Ministry of Science and Technology Doctoral Student 11/18
- Tel Aviv University Distinguished Ph.D. Award (School of Mathematics) 06/18
- SIAM Student Travel Award (NWCS18) 06/18
- Tel Aviv University Distinguished M.Sc. Award (School of Mathematics) 05/15
- Dean’s List Excellence Award (Hebrew University of Jerusalem) 03/09

PUBLICATIONS

Preprints

1. S.N. Hameedi, **A. Sagiv**, and M.I. Weinstein, “Radiative decay of edge states in Floquet media.” *arXiv:2201.11219*, under review.
2. Q. Du and **A. Sagiv**, “Minimizing optimal transport for functions with fixed-size nodal sets.” *arXiv:2110.14837*, under review.

Journal Papers

3. **A. Sagiv**, “Spectral Convergence of Probability Densities for Forward Problems in Uncertainty Quantification.” *Numerische Mathematik* 150, 1165–1185. 2022.
4. **A. Sagiv** and M.I. Weinstein, “Effective Gaps in Continuous Floquet Hamiltonians.” *SIAM J. on Mathematical Analysis*, 54, 986–1021, 2022.
5. O. Lindenbaum*, **A. Sagiv***, G. Mishne, and R. Talmon, “Kernel-Based Parameter Estimation of Dynamical Systems with Unknown Observation Functions.” *Chaos: An Interdisciplinary Journal of Nonlinear Science*, 31, 043118, 2021.
*Indicates equal contribution
6. **A. Sagiv** and S. Steinerberger. “Transport and Interface: an Uncertainty Principle for the Wasserstein Distance.” *SIAM J. on Mathematical Analysis*, 52, 3039–3051, 2020.
7. **A. Sagiv**, A. Ditkowski, R.H. Goodman, and G. Fibich. “Loss of Physical Reversibility in Reversible Systems.” *Physica D*, 410, 132515, 2020.
8. **A. Sagiv**. “The Wasserstein Distances Between Pushed-Forward Measures with Applications to Uncertainty Quantification.” *Communications in Mathematical Sciences*, 18, 707–724, 2020.
9. A. Ditkowski, G. Fibich, and **A. Sagiv**. “Density Estimation in Uncertainty Propagation Problems Using a Surrogate Model.” *SIAM/ASA J. on Uncertainty Quantification*, 8, 261–300, 2020.
10. G. Patwardhan, X. Gao, **A. Sagiv**, A. Dutt, J. Ginsberg, A. Ditkowski, G. Fibich, and A.L. Gaeta. “Loss of Polarization of Elliptically Polarized Collapsing Beams.” *Physical Review A*, 99, 033824, 2019.
11. **A. Sagiv**, A. Ditkowski, and G. Fibich. “Loss of Phase and Universality of Stochastic Interactions Between Laser Beams.” *Optics Express*, 25, 24387–24399, 2017.

TALKS

Seminar Talks

- **University of California, Davis**, Center of Quantum Mathematics and Physics, Mathematics seminar 05/22
- **University of Washington**, Applied Mathematics Seminar 04/22
- **Ohio State University**, Analysis Seminar 03/22
- **Georgia Tech**, ACM Seminar 11/21
- **University of Chicago**, Computational and Applied Mathematics 11/21
- **University of Illinois Urbana-Champaign**, PDE seminar 11/21
- **University of Colorado Boulder**, Waves seminar 10/21
- **Texas A&M**, Data Science Institute Tech Talks 10/21

- **Texas A&M**, PDE and Harmonic Analysis seminar 10/21
- **Yale**, Applied Mathematics Colloquium 10/21
- **MIT**, Aerospace Computational Design Laboratory seminar 09/21
- **Hebrew University of Jerusalem**, Analysis seminar 06/21
- **Tel Aviv University**, Applied Mathematics colloquium 06/21
- **UC San Diego**, Applied Mathematics seminar 03/21
- **Southern Methodist University**, Applied Mathematics colloquium 03/21
- **University of Minnesota**, IMA Data Science seminar 02/21
- **University of Maryland**, CSCAMM seminar 11/20
- **California Institute of Technology**, CMX seminar 02/20
- **UC Berkeley**, Applied Mathematics seminar 01/20
- **Flatiron Institute**, Numerical Analysis and CCM seminar 12/19
- **Rensselaer Polytechnic Institute**, Mathematical Sciences colloquium 10/19
- **New Jersey Institute of Technology**, Fluid Mechanics and Waves seminar 09/19
- **Tel Aviv University**, Applied Mathematics colloquium 06/19
- **Bar Ilan University**, Applied Mathematics seminar 05/19
- **Technion**, PDEs and Applied Mathematics seminar 04/19
- **Weizmann Institute**, Mathematical Analysis and Applications seminar 03/19
- **Columbia University**, Applied Mathematics colloquium 01/19
- **Stanford University**, Applied Mathematics seminar 10/18
- **UC Merced**, Applied Mathematics seminar 10/18
- **UC Irvine**, Applied Mathematics seminar 10/18
- **University of Colorado Boulder**, Waves seminar 09/18
- **Yale University**, Applied Mathematics seminar 09/18

Invited Conference Talks

- **SIAM Annual Meeting 2022**, Pittsburgh, PA 07/22
- **Approximation of high-dimensional parametric PDEs in forward UQ workshop**, Erwin Schrodinger Institute, Vienna (online) 05/22
- **SIAM UQ22**, Conference on Uncertainty Quantification, Atlanta, GA 04/22
- **Workshop on Perturbation of Spectral Bands and Gaps**, TU Dortmund, online 07/21
- **SIAM MS21**, Mathematical Aspects of Material Sciences, online 05/21
- **IMACS11**, Conference for Nonlinear Evolution Equations and Wave Phenomena, University of Athens, GA 04/19
- **SIAM CSE19**, Conference of Computational Science and Engineering, Spokane, WA 02/19
- **SIAM NWCS18**, Conference of Nonlinear Waves and Coherent Structures, Orange, CA 06/18
- **IMU18**, Israel Mathematical Union annual meeting, Technion, Haifa, Israel 05/18

Contributed and other Talks

- **SIAM Annual Meeting 21**, mini-symposium talk, online 07/21
- **SIAM CSE21**, minisymposium talk, Conference of Computational Science and Engineering, online 03/21
- **2nd Symposium on Machine Learning and Dynamical Systems**, hosted by the Fields Institute, online 09/20
- **Dynamics Days Digital**, online 08/20

- **One World Waves**, hosted by the ICMS, online 06/20
- **Dynamics Days 2020**, flash talk, Hartford CT 01/20
- **Brown-BU-UMass Dynamics and PDEs Workshop**, Brown, Providence, RI 11/19
- **Young Researchers Workshop**, Ki-Net network, CSCAMM, College Park, MD 10/19
- **OASIS7**, International Conference for Optics and Electro-Optics, Tel Aviv, Israel 04/19
- **IPS17**, Israel Physics Society annual meeting, Technion, Haifa, Israel 12/17
- **Frontiers in Optics 17**, OSA 101st Annual Meeting, Washington DC 09/17

STUDENTS SUPERVISED

- Ruoxi Li (Columbia Applied Mathematics '22). “Housorff Measure, Area and Co-Area formulas,” spring 2022.
- Jerry Qu (Columbia Applied Mathematics '23). “Reproducing kernel Hilbert spaces and kernel PCA,” summer 2021 (with MI Weinstein).
- Sameh N. Hameedi (Columbia Applied Mathematics M.Sc. '21, currently Ph.D. student at Oxford University). “Defect mode decay in Floquet Media,” 2020-2021 (with MI Weinstein).
- Ho Jia Xu Dion (Yale-NUS '21, currently Ph.D. student at Columbia University). “Solitary waves interactions with highly non-integrable nonlinearities,” 2019 (with W Schlag).

TEACHING EXPERIENCE

Columbia University

- Multivariate Calculus for Engineering and Applied Sciences (APAM2000E) fall 2019, 2020, 2021
- Principles of Applied Mathematics (APMA4001E) spring 2020
- Applied Mathematics III: Dynamical Systems (APMA4101E) spring 2021, 2022

Tel Aviv University

- Numerical Analysis for Engineering spring 2018

Tel Aviv University - Teaching Assistant

- Numerical Analysis fall 2017
- Ordinary Differential Equations spring 2017
- Calculus I fall 2017
- Ordinary Differential Equations for Engineering spring 2016

SERVICE AND ORGANIZATION

- **Referee:** Physical Review Letters, SIAM J. on Mathematical Analysis, Communications in Mathematical Physics, Physical Review A, Physical Review E, Physical Review Research, Wave Motion, Bulletin of the London Mathematical Society, International J. of Uncertainty Quantification, Computational Statistics and Data Analysis, J. of the Optical Society of America B (JOSA B), J. of Mathematical Imaging and Vision
- **Departmental Service.** Department of Applied Physics and Applied Mathematics (APAM) at Columbia University:
 - **Seminar organizer** of the APAM Friday Research Conference spring 2020, 2021, 2022
 - **Secretary of the Faculty** fall 2019 – fall 2020, spring 2022
- **Mini-Course** on dynamical systems at “Columbia Summer Undergraduate Research Experiences in Mathematical Modeling” summer 2021

- **Mini-symposium and special sessions organized:**

- “Optimal transport in uncertainty quantification and learning” for SIAM UQ22, Atlanta, GA (with Caroline Moosmueller) 04/22
- “Machine Learning for Scientific Discovery” for SIAM Annual Meeting, online (with Ofir Lindenbaum) 07/21
- “Recent Advances in Computational Probability” for SIAM CSE21, online (with Bamdad Hosseini) 03/21
- “Theory of Optical Waves in Novel Media” for Metamaterials 2020, online (with Michael I. Weinstein) 09/20

- **Conference referee** for Metamaterials 2020 and Metamaterials 2021

- **Tutoring** for undergraduate students with physical disabilities and for supporting foreign students. Tel Aviv University 2016-2017