

Mar. 19, 2025

## *Sara B. Tukachinsky*

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**Research interests** Symplectic geometry, algebraic geometry

**Appointments** 2021 – Senior Lecturer at Tel Aviv University  
2017 – 2021 Member of the School of Mathematics at IAS, Princeton  
Spring 2018 Member at MSRI, Berkeley  
2016 – 2017 Postdoctoral fellow of the Canada Research Chair at Université de Montréal

**Education** 2011 – 2017 PhD in Mathematics, The Hebrew University of Jerusalem  
2008 – 2011 M.Sc. in Mathematics, The Hebrew University of Jerusalem  
2005 – 2008 B.Ed. in Mathematics -extended, Michlalah Jerusalem College

**Selected invited talks** May 2024 Colloquium of the ZMP, Hamburg  
June 2023 Hodge Theory, Mirror Symmetry, and Physics of Calabi-Yau Moduli, Heidelberg  
December 2022 IBS-CGP & MATRIX Workshop on Symplectic Topology, Creswick  
June 2022 Mini-Workshop on Symplectic Geometry, Utrecht  
June 2022 3CinG Symplectic versus Algebraic Geometry, Warwick (part. online)  
March 2022 Recent developments in Lagrangian Floer theory, Simons Center for Geometry and Physics, Stony Brook  
March 2021 AMS Spring Eastern Virtual Sectional Meeting  
February 2021 Joint CUHK-Harvard-YMSC Differential Geometry Seminar  
March 2020 Shanks Workshop: Real Enumerative Geometry and Beyond, Vanderbilt University, Nashville  
January 2020 Topics in Symplectic Geometry, University of Augsburg  
January 2020 Conference on Real and Enumerative Geometries / Topology, Geometry, and Algebra Seminar, University of Nantes  
January 2020 The London Geometry and Topology Seminar  
January 2020 EDGE, University of Edinburgh

January 2020	Symplectic Geometry Seminar, Heidelberg University
January 2020	Physical Mathematics Seminar, Heidelberg University
November 2019	Symplectic Geometry Seminar, ETH, Zürich
November 2019	Geometry and Topology Seminar, Technion, Haifa
November 2019	Geometry and Dynamics Seminar, Tel Aviv University
November 2019	Geometry and Topology Seminar, Weizmann Institute, Rehovot
November 2019	Colloquium, University of Haifa
November 2019	Colloquium, Bar Ilan University, Ramat Gan
November 2019	Colloquium, The Hebrew University of Jerusalem
November 2019	Members' Seminar, IAS, Princeton
November 2019	Math-Physics Joint Seminar, University of Pennsylvania, Philadelphia
October 2019	Symplectic and Poisson Geometry Seminar, University of Illinois at Urbana-Champaign
September 2019	Symplectic Geometry, Gauge Theory & Categorifications Seminar, Columbia University, New York
September 2019	The Geometry and Algebra of Landau-Ginzburg Models, workshop, Fields Institute, Toronto
October 2018	Colloquium, Temple University, Philadelphia
June 2018	Colloquium, Technion, Haifa
June 2018	Colloquium, Bar Ilan University, Ramat-Gan
June 2018	Geometry and Topology Seminar, Hebrew University of Jerusalem
March 2018	Simons Collaboration Workshop: Mirror Symmetry and Enumerative Geometry, UC Berkeley
April 2018	Geometry and Topology Seminar, UC Davis
March 2017	Shanks Workshop on Real Algebraic Geometry, Vanderbilt University, Nashville
February 2017	Geometric Structures Laboratory, Fields Institute, Toronto
February 2017	Symplectic Geometry Seminar, Toronto University
February 2017	PU/IAS Symplectic Geometry Seminar
January 2017	Ottawa-Carleton Joint Algebra Seminar
October 2016	Geometry and Topology Seminar, CIRGET, Montréal
Fall 2016	Symplectic Seminar (series of 3 talks), CIRGET, Montréal
May 2016	The Sixth Advanced Seminar in Symplectic Geometry and TFT, BICMR, Beijing
May 2016	Simons collaboration: Workshop on SYZ Mirror Symmetry and Related Topics, Harvard, Cambridge
December 2015	Geometry and Dynamics Seminar, Tel-Aviv University
December 2015	Princeton/IAS Symplectic Geometry Seminar
November 2015	Symplectic Geometry Seminar, Berkeley
October 2015	KCL/UCL special geometry seminar, London
October 2015	Algebraic and Symplectic Geometry Seminar, Oxford

October 2015 Algebraic Geometry Seminar, Courant Institute, New York University  
 May 2015 Tzafriri talk (colloquium), The Hebrew University of Jerusalem

**Papers**

*Differential forms, open-closed maps, and Gromov-Witten axioms*, with Pavel Giterman, in preparation

*WDVV-based recursion for open Gromov-Witten invariants*, with Roi Blumberg, [arXiv:2402.10542](https://arxiv.org/abs/2402.10542)

*Examples of relative quantum cohomology*, with Kai Hugtenburg, [arXiv:2402.03209](https://arxiv.org/abs/2402.03209), to appear in *Kyoto J. Math.*

*Obstruction theory for cohomologically incompressible Lagrangians*, [arXiv:2311.18511](https://arxiv.org/abs/2311.18511)

*Differential forms on orbifolds with corners*, with Jake P. Solomon, [arXiv:2011.10030](https://arxiv.org/abs/2011.10030), *J. Topol. Anal.*, 16 (2024), no. 4, 561-615, <https://doi.org/10.1142/S1793525323500048>

*Relative quantum cohomology*, with Jake P. Solomon, [arXiv:1906.04795](https://arxiv.org/abs/1906.04795), *J. Eur. Math. Soc.* 26 (2024), no. 9, 3497–3573, <https://doi.org/10.4171/jems/1337>

*Point-like bounding chains in open Gromov-Witten theory*, with Jake P. Solomon, [arXiv:1608.02495](https://arxiv.org/abs/1608.02495), *Geom. Funct. Anal.* 31 (2021), no. 5, 1245 – 1320, <https://doi.org/10.1007/s00039-021-00583-3>

*Differential forms, Fukaya  $A_\infty$  algebras, and Gromov-Witten axioms*, with Jake P. Solomon, [arXiv:1608.01304](https://arxiv.org/abs/1608.01304), *J. Symplectic Geom.* 20 (2022), no. 4, 927-994, <https://dx.doi.org/10.4310/JSG.2022.v20.n4.a5>

*Super-rigidity of holomorphic disks in Calabi-Yau threefolds*, with Jake P. Solomon, M.Sc. thesis ([original](https://www.math.ias.edu/~sarabt/masters_proofread.pdf) ,or: [https://www.math.ias.edu/~sarabt/masters\\_proofread.pdf](https://www.math.ias.edu/~sarabt/masters_proofread.pdf))

**Awards and honors**

<b>Post-graduate</b>	2021-2024	Colton fellowship for young faculty at TAU
	2021-2025	The Israel Science Foundation Grant No. 2793/21
<b>Graduate and undergraduate</b>	2018	Hans Wiener thesis prize of the Hebrew University
	2018	Nessyahu thesis prize of the Israel Mathematical Union
	2016	Chateaubriand fellowship (declined)
	2016	Lior Tzafriri prize
	2012	Joseph Klein prize
	2009	Dean’s excellence award
	2008	Judith Lamm Young prize

**Organization of seminars and workshops**

Summer 2023	Co-organized the workshop <i>At the Crossroads of Topology and Enumerative Geometry</i> <a href="http://www.ma.huji.ac.il/~conferences/TEG/">http://www.ma.huji.ac.il/~conferences/TEG/</a>
2022-2024	Organized the Tel Aviv Math Colloquium
2021 –	Co-organizing the Seminar in Real and Complex Geometry (Tel Aviv)

2020 – Co-organizing the Symplectic Zoominar (Montréal-Princeton-IAS-Tel Aviv-Paris)  
 Spring 2018 Co-organized the 5-minute talks series at MSRI

**Teaching**

<b>Lecturer</b>	Spring '25	Guided reading course: Introduction to transversality in symplectic geometry (graduate) Topology (undergraduate)
	Fall '24	Differential geometry (undergraduate)
	Spring '24	Lie algebras and Lie groups 1 (graduate) Topology (undergraduate)
	Fall '23	Complex analysis I (undergraduate)
	Spring '23	Seminar: Topics in pseudo-holomorphic curves (graduate)
	Fall '22	Differential geometry (undergraduate) Guided reading course on Floer homology and quantum homology (graduate)
	Spring '22	Topology (undergraduate)
	Fall '21	Guided reading course on Gromov's compactness theorem (graduate)

**TA**

2011 – 2016	Teaching assistant at the Hebrew University in the following courses. Graduate: Basic notions in differential geometry Undergraduate: Measure theory; Complex analysis and applications; Linear algebra I-II; Linear algebra for chemists; Mathematics for physicists and engineers
2009 – 2011	Grader at the Hebrew University
2007 – 2009	Grader and TA at Michlalah Jerusalem College