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
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
| Date       | Event                                                                                       |
|------------|---------------------------------------------------------------------------------------------|
| 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**

*Examples of relative quantum cohomology*, with Kai Hugtenburg and Jake P. Solomon, in preparation

*Obstruction theory for cohomologically incompressible Lagrangians*, in preparation

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

*Differential forms on orbifolds with corners*, with Jake P. Solomon, [arXiv:2011.10030](https://arxiv.org/abs/2011.10030) to appear in *J. Topol. Anal.* [https://doi.org/10.1142/S1793525323500048](https://doi.org/10.1142/S1793525323500048)

*Relative quantum cohomology*, with Jake P. Solomon, [arXiv:1906.04795](https://arxiv.org/abs/1906.04795) to appear in *J. Eur. Math. Soc.* [https://doi.org/10.4171/jems/1337](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](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](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**

**Post graduate**

- 2021-2024  Colton fellowship for young faculty at TAU
- 2021-2025  The Israel Science Foundation Grant No. 2793/21

**Graduate and undergraduate**

- 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 *At the Crossroads of Topology and Enumerative Geometry*

**2022 –**  Organizing 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

**Lecturer**  Spring 2023  Seminar: Topics in pseudo-holomorphic curves (graduate)
Teaching experience

Fall 2022  Differential geometry (undergraduate)
           Guided reading course on Floer homology and quantum homology
           (graduate)

Spring 2022  Topology (undergraduate)

Fall 2021  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