

Umut Varolgunes

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Employment

Postdoc positions

- Researcher at Bogazici University¹: November 2021 -
- Researcher at University of Edinburgh: September 2021 - November 2021
- Szego Assistant Professor at Stanford University: September 2018 - June 2021

Education

Graduate - Massachusetts Institute of Technology

- September 2013 - May 2018
- PhD. in Mathematics
- Advisor: Paul Seidel
- Thesis title: Mayer-Vietoris property for relative symplectic cohomology

Undergraduate - Massachusetts Institute of Technology

- September 2009 - May 2013
- Bachelor of Science degrees in Mathematics and Physics
- GPA: 4.8/5

Research Interests

symplectic geometry, Floer theory, algebraic geometry

Publications

On the equatorial Dehn twist of a Lagrangian nodal sphere, Proceedings of the 22nd Gokova Geometry/Topology conference (2017), 112–137

Mayer-Vietoris property for relative symplectic cohomology, Geometry & Topology 25-2 (2021), 547–642

Super-rigidity of certain skeleta using relative symplectic cohomology (joint with Dmitry Tonkonog), accepted for publication in Journal of Topology and Analysis

Seifert form of chain type singularities, accepted for publication in Kyoto Journal of Math.

Quantum cohomology as a deformation of symplectic cohomology (joint with Nick Sheridan and Strom Borman), JFPTA Viterbo 60 Volume 24.2 (2022): 1-77

Preprints

On certain quantifications of Gromov’s non-squeezing theorem (joint with Kevin Sackel, Antoine Song and Jonathan Zhu) - <https://arxiv.org/abs/2105.00586>

On homological mirror symmetry for chain type polynomials (joint with Alexander Polishchuk) - <https://arxiv.org/abs/2105.03808>

Locality of relative symplectic cohomology for complete embeddings (joint with Yoel Groman) - <https://arxiv.org/abs/2110.08891>

¹under TUBITAK 2236 (CoCirculation2; New Horizon 2020 Marie Skłodowska-Curie Actions Co-fund Program), on leave Nov. 2021 - Feb. 2022 at University of Edinburgh

Ongoing projects	Framed E_2 algebra structure on relative symplectic cohomology (joint with Mohammed Abouzaid and Yoel Groman), in writing
	Non-archimedean analytic mirrors of symplectic cluster manifolds (joint with Yoel Groman), in writing
Awards and Honors	Gold Medals in 2008 and 2009 International Mathematics Olympiads. MIT Praecis Presidential Fellowship 2013 - 2014
Languages	Turkish (native), English (fluent)
Invited talks	Preprint seminar on symplectic geometry and related topics - Columbia University, October 12, 2015
	23rd Gokova Geometry and Topology Conference - May 30 - June 4, 2016
	Symplectic Geometry Seminar - Stanford University, January 30, 2017
	Student Symplectic Seminar - Stanford University, February 9, 2017
	Math-Physics Joint Seminar - UPenn, April 18, 2017
	Mini lecture series on my thesis (4 lectures) - Columbia University, Spring 2017
	Symplectix seminar - Paris, September 15, 2017
	Geometry/Physics seminar - Northwestern University, September 28, 2017
	Topology and Symplectic Geometry / Math of Gauge Fields seminar - Stony Brook University, October 5, 2017
	Symplectic Geometry Seminar - Stanford University, October 9, 2017
	Seminar on Mirror Symmetry - UC Berkeley, October 13, 2017
	Topology Seminar - Princeton University, October 19, 2017
	Geometry/Topology Seminar - UC Davis, January 22, 2019
	North Carolina Symplectic Geometry Seminar - Stanford, May 6, 2019
	Mathematics seminar - Korean Institute of Advanced Study, Seoul, August 30, 2019
	Symplectic seminar - Stony Brook University, September 12, 2019
	Symplectic geometry, Gauge theory and Categorification Seminar - Columbia University, September 13, 2019
	Simons Collaboration on Homological Mirror Symmetry Annual meeting - New York, November 14, 2019
	Topology Seminar - University of Oregon, March 10, 2020

Geometry, Symmetry and Physics Seminar - Rutgers University (online), May 14, 2020

M-Seminar - Kansas State University (online), May 28, 2020

Western Hemisphere Symplectic Geometry Seminar (online) - June 26, 2020

UCGEN Seminar (online) - September 23, 2020

Montreal, Princeton/IAS, Paris, Tel-Aviv Symplectic Zoominar (online) - October 16, 2020

Boston University Geometry & Physics seminar (online) - March 24, 2021

Beijing-Novosibirsk seminar on geometry and mathematical physics (online) - April 15, 2021

Shafarevich Seminar - Steklov Institute, September 21, 2021

3CinG Annual Congress (online) - September 22, 2021

Friday seminar (?) - Higher School of Economics, September 24, 2021

Freemath (online) - September 28, 2021

Differential geometry and topology seminar - Cambridge University, October 27, 2021

Hodge Seminar - Bayes Center, Edinburgh, November 4, 2021

Geometry and dynamics seminar - Tel-Aviv University (online), November 10, 2021

Symplectic and Poisson geometry seminar - University of Illinois at Urbana-Champaign (online), November 29, 2021

Geometry and Topology seminar - Michigan State University (online), December 7, 2021

Workshop on Mirror symmetry and Related Topics - Kyoto (online), December 13, 2021

Global Youth Forum - USTC-IGP, Hefei (online), January 11, 2022

Mini course on relative symplectic cohomology (8 lectures) - Edinburgh, Fall 2021

Nick Sheridan's postdoc seminar - Bayes Center, Edinburgh, January 19, 2022

GeNeSys: Geneva-Neuchâtel Symplectic geometry seminar, January 24, 2022

Montreal, Princeton/IAS, Paris, Tel-Aviv Symplectic Zoominar (online) - February 18, 2022

IMBM - Istanbul, February 17-22-25, 2022

Geometry and dynamics seminar (TIDY Distinguished Speaker) - Tel-Aviv University, April 27, 2022

Pure Maths Colloquium - Sheffield University (online), May 25, 2022

**Organizational
Activity**

Student organizer for 2016 (inaugural year) and 2017 Kylerec graduate student workshops

Mentor for Kylerec 2019

Organizer for Stanford Symplectic Geometry Seminar 2018-2020

Organizer for North California Symplectic Geometry Seminar 2018-2020

Organizer for the conference “Mirror symmetry for Looijenga interiors and beyond”, planned for July 2022

Teaching

TA for 18.01/02A (Expedited single and multi variable calculus), Fall 2015, MIT

TA for 18.03 (Differential equations), Spring 2016, MIT

TA for 18.095 (Winter break lecture series), Winter 2018

Lecturer for Math 113 (Linear algebra with proofs, undergraduate), Winter 2019, Stanford

Lecturer for Math 215B (Differential topology, graduate), Winter 2019, Stanford

Lecturer for Math 257C (Hamiltonian Floer theory, advanced graduate), Autumn 2019, Stanford

Lecturer for Math 257A (Symplectic geometry, graduate) Fall 2019, Stanford

Lecturer for Math 147 (Differential topology, undergraduate) Fall 2019, Stanford

Lecturer for Math 53* (Ordinary differential equations, undergraduate) Spring 2020, Stanford

Lecturer for Math 215B (Differential topology, graduate), Winter 2021, Stanford

Lecturer for Math 53* (Ordinary differential equations, undergraduate) Spring 2021, Stanford

Lecturer for Math 113 (Linear algebra with proofs, undergraduate), Spring 2021, Stanford

Lecturer for Math 58J (Cohomology of manifolds, undergraduate), Fall 2022, Bogazici University

*=more than 100 students