Hülya Argüz

Curriculum Vitae

Personal Information

Full name:	Nurömür Hülya Argüz (pronouns: she/her/hers)
Nationality:	Germany
E-mail:	Hulya.Arguz@uga.edu

Employment

08.2022–present	**Assistant Professor**, University of Georgia, United States
10.2019-09.2021	**Postdoctoral scholar**, Université Paris–Saclay, UVSQ Funded by Fondation Mathématiques Jacques Hadamard, supevisor: Dimitri Zvonkine
01.2017-09.2019	**Postdoctoral research associate**, Imperial College London Supervisor: Tom Coates

Visiting/short term positions

10.2021-07.2022	**IST fellow**, Institute of Science and Technology, Austria Supervisor: Tamàs Hausel
01.2018-03.2018	**Visiting research fellow**, University of Cambridge, United Kingdom Supervisor: Mark Gross
09.2016-12.2016	**Member**, IAS School, Princeton, United States Supervisors: Mohammed Abouzaid and Paul Seidel

Education

16.08.2016	**PhD in Mathematics**, University of Hamburg, Germany Thesis title: Log geometric techniques for open invariants in mirror symmetry. Supervisor: Bernd Siebert
28.03.2013	**MSc in Mathematics**, University of Hamburg, Germany Thesis title: Lagrangian submanifolds in Kato–Nakayama spaces. Supervisor: Bernd Siebert
10.2011	**MSc in Mathematics**, *with Honors*, Middle East Technical University, Turkey
02.2008	**BSc in Mathematics**, *with Honors*, Middle East Technical University, Turkey
09.2003	**High School Diploma**, Izmir Fen Lisesi (Izmir Science High School), Turkey This is a boarding school inside the campus of Ege universirty, aimed to train scientists. It admits top students in a nationwide annual high school entrance exam (in which I ranked as 7th, among around a million students).

Grants and honors

2023-2026	**PI, NSF standard grant**, *DMS 2302116, New bridges to Gromov-Witten theory*, $160,000.00.
2019-2024	**co-PI, NSF conference grant**, *Georgia Algebraic Geometry Symposium*, $24,980.00.
2021	**PI, European Commision Marie-Curie grant**, *project hosts: Dan Abramovich and David Holmes, 253052 Euros*, $251,418.
	(I declined this when moving to the US on a tenure-track position)
2020	**Junior fellowship**, *Institut Mittag–Leffler, Sweden*, 30000 SEK
	To participate in the program "Knots, strings, symplectic geometry and dualities"
2019-2021	**Fondation Mathématiques Jacques Hadamard Postdoctoral Laureate**
	This award, granted annually to five postdocs in total in all disciplines, paid for my salary and travel expenses for two years in France.
9/2016-12/2016	**Institute for Advanced Studies, postdoctoral funding through NSF**
	This fellowship paid for salary and expenses during the thematic program on *Homological Mirror Symmetry*.
2012-2016	**DFG (German research foundation) scholarship, via RTG1670, "Mathematics inspired by string theory and quantum field theory"**
	This scholarship paid for salary and expenses during my MSc and PhD studies.

Papers (listed chronologically with dates they first appeared on arxiv)

2023	H. Argüz, P. Bousseau: Quivers and curves in higher dimension, arXiv:2308.07270, 38 pages, submitted.
2023	H. Argüz: Quiver DT invariants and log Gromov–Witten of toric varieties, arXiv:2303.10811, 15 pages, appear in the **String Math 2022 proceedings, AMS Proceedings of Symposia in Pure Mathematics**.
2023	H. Argüz, P. Bousseau: Quivers, Flow Trees, and Log Curves, arXiv:2302.02068, 61 pages, submitted.
2022	H. Argüz, P. Bousseau: Fock-Goncharov dual cluster varieties and Gross-Siebert mirrors, arXiv:2206.10584, 54 pages, **Journal für die reine und angewandte Mathematik** (Crelle's Journal), https://doi.org/10.1515/crelle-2023-0043, (2023).
2021	H. Argüz, P. Bousseau, R. Pandharipande, D. Zvonkine: Gromov–Witten Invariants of Complete Intersections, arXiv:2109.13323, published at the **Journal of Topology**, Volume 16, Issue 1, pg 264-343, (2023).
2021	H. Argüz: Equations of mirrors to log Calabi–Yau pairs via the heart of canonical wall structures, arXiv:2109.08664, published at the **Mathematical Proceedings of the Cambridge Philosophical Society**, https://doi.org/10.1017/S030500412300021X, pg:1–41, (2023).
2021	H. Argüz, P. Bousseau: The flow tree formula for Donaldson-Thomas invariants of quivers with potentials, arXiv:2102.11200, published at **Compositio Mathematica**, 158 (12), pg. 2206-2249, (2022).

2021   H. Argüz: The Quantum Mirror to the Quartic del Pezzo Surface, arXiv:2112.09082, published at **Springer Proceedings in Mathematics and Statistics, 396**, Lie Theory and Its Applications in Physics, ISBN-13: 9789811947506, 6 pgs., (2022).

2020   H. Argüz, M. Gross: The higher dimensional tropical vertex, arXiv:2007.08347, published at **Geometry & Topology** , 26-5, pg: 2135-2237, (2022).

2020   H. Argüz, P. Bousseau: Real log curves in toric varieties, tropical curves, and log Welschinger invariants, arXiv:2004.05124, published at **Annales de l'institut Fourier**, Volume 72, pg. 1547-1620 (2022).

2020   H. Argüz, T. Prince: On the cohomology groups of real Lagrangians in Calabi-Yau threefolds, arXiv:2002.03957, published at **Experimental Mathematics**, https://doi.org/10.1080/10586458.2021.1926006, 32 pages, (2021).

2020   H. Argüz: Topological torus fibrations on Calabi–Yau manifolds via Kato–Nakayama spaces, arXiv:2003.11589, published at **Proceedings of GGT, Gökova Geometry Topology Conferences 2018/2019**, International Press, pg. 176-201, (2021).

2019   H. Argüz, T. Prince: Real Lagrangians in Calabi-Yau Threefolds, arXiv:1908.06685, published at **Proceedings of the London Mathematical Society** 121(2), pg. 287-311, (2020)

2018   H. Argüz, T. Prince: Note on Schoen's Calabi–Yau Threefolds, arXiv:1807.10172, published at **Rendiconti del Seminario Matematico Torino**, Vol. 79, 1, 15-20, (2021)

2017   H. Argüz: Mirror symmetry for the Tate curve via tropical and log corals, arXiv:1712.10260, published at the **Journal of the London Mathematical Society**, http://doi.org/10.1112/jlms.12515, (2022).

2016   H. Argüz: Real loci in (log-) Calabi-Yau manifolds via Kato-Nakayama spaces of toric degenerations, arXiv:1610.07195, published at the **European Journal of Mathematics**, 7(3), 869-930, (2021).

2012   H. Argüz, M. Kalafat: Complex and symplectic structures on Panelled Web 4-manifolds, arXiv:1201.4605, published at the **Topology and its Applications**, 159, no:8, pg 2169-2173, (2012).

2011   H. Argüz, M. Kalafat, Y. Ozan: Self dual metrics on non-simply connected 4-manifolds, arXiv:1108.0433, published at the **Journal of Geometry and Physics**, Volume 64, pg 79-82, (2013).

Other (PhD thesis and reports)

2019   H. Argüz: Toric degenerations and tropical enumeration of real curves with Welschinger signs, **Oberwolfach reports** 27/2019 DOI: 10.4171/OWR/2019/27, 45-47.

2016   H. Argüz: Log-geometric techniques for open invariants in mirror symmetry. **PhD thesis, University of Hamburg**, http://ediss.sub.uni-hamburg.de/.

2015   H. Argüz: Floer theory for the Tate curve via tropical geometry, **Oberwolfach reports** no 23/2015, DOI: 10.4171/OWR/2015/23, 1290-1293.

Invited Talks at International Conferences

2023   **Instituto de Matemáticas Universidad de Granada, Spain**, *IberoSing International Workshop 2023: Mirror symmetry & Hodge ideals*, November, 2023

2023   **Banff International Research Station, Canada**, *Complex Lagrangians, Mirror Symmetry, and Quantization*, October, 2023

2023   **University of Heidelberg, Germany**, *Conference on Hodge theory, Mirror Symmetry, and Physics of Calabi-Yau Moduli*, June, 2023

2023   **Virginia Commonwealth University, United States**, *Richmond Geometry Meeting*, June, 2023

2023   **IMSA University of Miami, United States**, *Homological Mirror Symmetry*, January, 2023

2023   **AMS Joint Math Meetings at Boston, United States**, *Special Session on Excursions in Arithmetic Geometry II*, January, 2023

2022   **University of Kansas, United States**, *Kansas Geometry Day 2022*, November, 2022

2022   **Simons Foundation, NYC, United States**, *Annual Meeting of the Simons Collaboration on Homological Mirror Symetry*, November, 2022

2022   **University of Cologne, Germany**, *Quivers, representation theory and physics*, September, 2022

2022   **University of Warsaw, Poland**, *StringMath, parallel session*, September, 2022

2022   **IHÉS, France**, *Workshop on Quantum Geometry*, July, 2022

2022   **Sorbonne, France**, *Workshop on Quivers, Calabi–Yau Threefolds and DT Invariants*, April, 2022

2022   **Leysin, Switzerland**, *Recent Advances on Moduli Spaces of Curves*, April, 2022

2021   **University of Angers, France**, *Journés Géométrie Algébrique et Géométrie Complexe*, November, 2021

2021   **Oberwolfach, Germany**, *New Techniques on Resolution of Singularities*, October, 2021

2021   **Warwick, United Kingdom**, *Annual workshop of 3CinG (Classification, Computation, and Construction*, October, 2021

2021   **Lille, France**, *Tropical geometry and Singularities*, September, 2021

2021   **Sofia, Bulgaria**, *XIV. International Workshop Lie Theory and Its Applications in Physics*, June, 2021

2021   **le Croisic, France**, *Summer School of the ANR on Symplectic, Real, and Tropical Aspects of Enumerative Geometry*, June, 2021

2021 **AMS joint math meetings, online**, *Special Session on Arithmetic and Algebraic Geometry*, January, 2021

2021 **Simons Foundation, online**, *Workshop on Floer-theoretic and algebro-geometric aspects of SYZ mirror symmetry*, September, 2021

2021 **Online FRG Workshop**, *Moduli Spaces and Stability*, December, 2021

2020 **Kyoto University, Japan**, *The 5'th KTGU Mathematics Workshop for Young Researchers*, February, 2020

2019 **Oberwolfach, Germany**, *Workshop on Logarithmic Algebraic Geometry*, June, 2019

2019 **Loughborough, UK**, *Geometry and Physics Workshop*, March, 2019

2019 **Freiburg, Germany**, *Fourth Meeting for Young Women in Mathematics*, February, 2019

2019 **KIAS, Seoul, South Korea**, *Matrix Factorizations and Mirror Symmetry*, February, 2019

2018 **University of Georgia, University of Georgia**, *57th Annual Georgia Topology Conference*, June, 2018

2018 **Institut Mittag-Leffler, Djursholm, Sweden**, *Tropical Geometry*, March, 2018

2018 **Sheffield, UK**, *GLEN British "Algebraic Geometry Meeting*, February, 2018

2017 **Higher School of Economics, Moscow, Russia**, *Conference on Mirror Symmetry and Related Topics*, December, 2017

2017 **IBS Center for Geometry and Physics, Pohang, South Korea**, *Pacific Rim Conference on Complex and Symplectic Geometry*, August, 2017

2015 **Oberwolfach, Germany**, *Tropical Aspects in Geometry, Topology and Physics*, April, 2015

Teaching

2023 fall Instructor, Math 8300 Toric Geometry and Cluster Varieties, University of Georgia.

2023 fall Instructor, Math 3300 Calculus III Applied Linear Algebra, University of Georgia.

2023 spring Instructor, Math 2500 Calculus III for Engineers, University of Georgia.

2022 fall Instructor, Math 2250 Calculus I, University of Georgia.

2019 Instructor, Riemannian Geometry, Imperial College London.

2014 TA, Algebra, University of Hamburg.

2013 TA, Algebraic Geometry, University of Hamburg.

Supervision

Postdocs:

2023 – current   Yu Wang, University of Georgia.

PhD Students:

2023 – current   Primary adviser for Ji Jie (co-adviser: Pierrick Bousseau), University of Georgia.

2023 – current   Co-adviser for Sayan Chattopadhyay (primary adviser: Pierrick Bousseau), University of Georgia.

BSc/Honors/MSc students:

2023   Honors project adviser for Zachary Wright (BSc), on *Quarternions and Rotations*, University of Georgia.

2023   DRP mentor of Kyle Jones (BSc), on *The secondary polytope*, University of Georgia.

2019   MSc thesis advisor (joint with Tom Coates) for Vivek Mistry, on *Tropical algebraic geometry*, Imperial College London.

Service

◇ Co-organizer of the AMS Special Session on Moduli Spaces in Algebraic Geometry, Florida State University in Tallahassee, FL, March 23-24, 2024

◇ Co-organizer of the Georgia algebraic Geometry Symposium, funded by the National Science Foundation and the University of Georgia, April 28-30, 2023

◇ Creator of the youtube channel UGA Algebraic Geometry

◇ Reviewer for AMS Mathematical Reviews and zbMath

◇ Referee for: Advances in Mathematics, Compositio Mathematica, Journal of Differential Geometry, Journal of the London Mathematical Society.

Languages

◇ English (fluent)

◇ German (fluent)

◇ French (fluent)

◇ Turkish (fluent)