Hülya Argüz

Curriculum Vitae

Personal Information

Full name:	Nurömür Hülya Argüz (pronouns: she/her/hers)
Nationality:	Germany
E-mail:	Hulya.Arguz@uga.edu
Website:	https://sites.google.com/view/hulya-arguz

Employment

08.2022–present	**Assistant Professor**, University of Georgia, United States
10.2019-09.2021	**Postdoctoral scholar**, Université Paris–Saclay, UVSQ, France Supervisor: Dimitri Zvonkine
01.2017-09.2019	**Postdoctoral research associate**, Imperial College London, United Kingdom 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 special boarding school inside the campus of Ege University, aiming to train scientists. It admits top students in a nationwide annual high school entrance exam, in which I ranked 7th among around a million students in 2000.

Grants and honors

2024–2029 **co-PI, NSF Research Training Group grant DMS 2342252**, *RTG: Geometry and Topology, $2,497,014.00.*

2023–2026 **PI, NSF standard grant DMS 2302116**, *New bridges to Gromov-Witten theory, $160,000.00.*

2024 **PI**, *NSF Supplement REU award*, Supplementary award DMS 2410155 (for the standard grant DMS 2302116), to organise summer Research Experiences for Undergraduates, $6,200.00.

2023 **co-PI, NSF conference grant**, *Georgia Algebraic Geometry Symposium, $24,980.00.*

2021 **PI**, *European Commision Marie-Curie grant, project hosts: Dan Abramovich (Brown) and David Holmes (Leiden)*, 253,052.00 Euros
I declined this grant 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"

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2019 **Fondation Mathématiques Jacques Hadamard Postdoctoral Laureate**
This award, granted annually to three postdocs in total in all areas of pure mathematics, paid for my salary and expenses for two years in France.

2016 **Institute for Advanced Studies postdoctoral scholarship through NSF**
This fellowship paid for salary and expenses during the thematic program on *Homological Mirror Symmetry* in fall 2023.

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)

2024 V. Alexeev, H. Argüz, P. Bousseau: Non-toric brane webs, Calabi-Yau 3-folds, and 5d SCFTs, preprint arXiv:2410.04714, 80 pages, submitted.

2024 V. Alexeev, H. Argüz, P. Bousseau: The KSBA moduli space of stable log Calabi-Yau surfaces, arXiv:2402.15117, 91 pages, submitted.

2023 H. Argüz, P. Bousseau: Quivers and curves in higher dimension, arXiv:2308.07270, 38 pages, **Transactions of the American Mathematical Society**, DOI: 10.1090/tran/9232, (2024).

2023 H. Argüz: Quiver DT invariants and log Gromov–Witten of toric varieties, arXiv:2303.10811, **String Math 2022**, AMS Proceedings of Symposia in Pure Mathematics, Volume: 107, pg 1-15, (2024).

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, **Journal für die reine und angewandte Mathematik (Crelle's Journal)**, Volume 2023, Issue 802, pg. 125-171, (2023).

2021   H. Argüz, P. Bousseau, R. Pandharipande, D. Zvonkine: Gromov–Witten Invariants of Complete Intersections, arXiv:2109.13323, **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, **Mathematical Proceedings of the Cambridge Philosophical Society**, 175(2), pg. 381-421, (2023).

2021   H. Argüz, P. Bousseau: The flow tree formula for Donaldson-Thomas invariants of quivers with potentials, arXiv:2102.11200, **Compositio Mathematica**, 158 (12), pg. 2206-2249, (2022).

2021   H. Argüz: The Quantum Mirror to the Quartic del Pezzo Surface, arXiv:2112.09082, **Lie Theory and Its Applications in Physics**, Springer Proceedings in Mathematics and Statistics, 396, ISBN-13: 9789811947506, pg. 423-431, (2022).

2020   H. Argüz, M. Gross: The higher dimensional tropical vertex, arXiv:2007.08347, **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, **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, **Experimental Mathematics**, 32(1), 169–190, (2021).

2020   H. Argüz: Topological torus fibrations on Calabi–Yau manifolds via Kato–Nakayama spaces, arXiv:2003.11589, **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, **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, **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, **Journal of the London Mathematical Society**, Volume 105, Issue 1, pg. 343-411, (2022).

2016   H. Argüz: Real loci in (log-) Calabi-Yau manifolds via Kato-Nakayama spaces of toric degenerations, arXiv:1610.07195, **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, **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, 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**.

2015   H. Argüz: Floer theory for the Tate curve via tropical geometry, Oberwolfach reports, DOI: 10.4171/OWR/2015/23, 1290-1293.

Invited Lectures at Conferences

09/2024   **Geometry and Physics of Mirror Symmetry**, *University of Sheffield, UK*

07/2024   **LMS Invited Lectures**, *Imperial College London, UK*

06/2024   **String-Math 2024**, International Center for Theoretical Physics, Italy

05/2024   **Geometric, algebraic, and physical structures around quadratid differentials**, Simons center for Geometry and Physics, United States

05/2024   **Real and Logarithmic Enumerative Geometry**, *Oberwolfach, Germany*

04/2024   **Southern California Algebraic Geometry Seminar**, *Caltech, United States*

03/2024   **Algebraic Geometry Northeastern Series**, Boston College, United States

02/2024   **Geometry of the South**, University of Miami, United States

01/2024   **Homological Mirror symmetry**, University of Miami, United States

11/2023   **IberoSing International Workshop 2023: Mirror symmetry & Hodge ideals**, Instituto de Matemáticas Universidad de Granada, Spain

10/2023   **Complex Lagrangians, Mirror Symmetry, and Quantization**, Banff International Research Station, Canada

06/2023   **Conference on Hodge theory, Mirror Symmetry, and Physics of Calabi-Yau Moduli**, University of Heidelberg, Germany

06/2023   **Richmond Geometry Meeting**, Virginia Commonwealth University, United States

01/2023   **Homological Mirror Symmetry**, IMSA University of Miami, United States

01/2023   **Special Session on Excursions in Arithmetic Geometry II**, AMS Joint Math Meetings at Boston, United States

11/2022   **Kansas Geometry Day 2022**, University of Kansas, United States

11/2022   **Annual Meeting of the Simons Collaboration on Homological Mirror Symetry**, Simons Foundation, NYC, United States

09/2022   **Quivers, representation theory and physics**, University of Cologne, Germany

09/2022   **StringMath, parallel session**, University of Warsaw, Poland

07/2022   **Workshop on Quantum Geometry**, IHÉS, France

04/2022   **Workshop on Quivers, Calabi–Yau Threefolds and DT Invariants**, Sorbonne, France

04/2022   **Recent Advances on Moduli Spaces of Curves**, Leysin, Switzerland

11/2021   **Journés Géométrie Algébrique et Géométrie Complexe**, Angers, France

10/2021	**New Techniques on Resolution of Singularities**, Oberwolfach, Germany
09/2021	**Annual workshop of 3CinG**, University of Warwick, UK
09/2021	**Tropical geometry and Singularities**, *Lille, France*
06/2021	**XIV. Workshop on Lie Theory and its Applications in Physics**, Sofia, Bulgaria
06/2021	**Summer School of the ANR on Symplectic, Real, and Tropical Aspects of Enumerative Geometry**, le Croisic, France
01/2021	**Arithmetic and Algebraic Geometry**, AMS joint math meetings, online
10/2021	**Workshop on Floer-theoretic and algebro-geometric aspects of SYZ mirror symmetry**, Simons Foundation, online
12/2021	**Moduli Spaces and Stability**, Online FRG Workshop
02/2020	**5'th KTGU Mathematics Workshop for Young Researchers**, Kyoto, Japan
06/2019	**Workshop on Logarithmic Algebraic Geometry**, Oberwolfach, Germany
02/2019	**Fourth Meeting for Young Women in Mathematics**, Freiburg, Germany
02/2019	**Matrix Factorizations and Mirror Symmetry**, KIAS, Seoul, South Korea
06/2018	**57th Annual Georgia Topology Conference**, University of Georgia, University of Georgia
03/2018	**Tropical Geometry, Amoebas and Polytopes**, Institut Mittag-Leffler, Djursholm, Sweden
02/2018	**GLEN British "Algebraic Geometry Meeting**, Sheffield, UK
12/2017	**Conference on Mirror Symmetry and Related Topics**, Moscow, Russia
08/2017	**Pacific Rim Conference on Complex and Symplectic Geometry**, IBS Center for Geometry and Physics, Pohang, South Korea
04/2015	**Tropical Aspects in Geometry, Topology and Physics**, Oberwolfach, Germany

Teaching

2024 fall	Instructor, Math 8300 Introduction to Algebraic Geometry , University of Georgia.
2024 fall	Instructor, Math 2270 Calculus III for Science and Mathematics, University of Georgia.
2024 spring	Instructor, Math 8800 Sheaf Cohomology, University of Georgia.
2023 fall	Instructor, Math 8300 Toric Geometry, University of Georgia.
2023 fall	Instructor, Math 3300 Applied Linear Algebra (2 sections), 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 – 2024 Yu Wang, University of Georgia (*subsequent position: Louisiana State University*)

PhD Students:

2024 – current Kaden Saucedo, University of Georgia

2023 – current Sayan Chattopadhyay (joint with Pierrick Bousseau), University of Georgia

BSc/Honors/MSc students:

2024 REU project mentor for Sara Rose Logsdon, during *REU: non-commutative algebra from geometry*, University of Georgia

2024 REU project mentor for Ava Kuhlman, during *REU: non-commutative algebra from geometry*, University of Georgia

2023 Honors project adviser for Zachary Wright, on *Quaternions and Rotations*, University of Georgia

2023 DRP mentor of Kyle Jones, on *The secondary polytope*, University of Georgia

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

Service

◇ Co-organizer RTG: non-commutative algebra from geometry , University of Georgia, GA, August, 2024

◇ Faculty coordinator UGA Mathcamp 2024, University of Georgia, GA, July 2024

◇ Advisory committee member for the Institue of the Mathematical Sciences of the Americas (IMSA), since 2024.

◇ Co-organizer of the Georgia algebraic Geometry Symposium, funded by the National Science Foundation and the University of Georgia, March 21-23, 2025

◇ Co-organizer of the 1st edition of Industrial Maths Days, University of Georgia, GA, April 27, 2024

◇ Co-organizer of the 1st edition of Sonia Kovalevsky Days, University of Georgia, GA, April 20, 2024

◇ 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

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

Languages

- ⋄ English (fluent)
- ⋄ German (fluent)
- ⋄ French (fluent)
- ⋄ Turkish (fluent)