

# 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, supervisor: [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 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 as 7th, among around a million students.

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## 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 Commission Marie-Curie grant**, *project hosts: Dan Abramovich and David Holmes*, 253052 Euros  
(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.

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## 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).

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### 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.

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## 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 Symmetry*, 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**, *Journées 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.

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## Supervision

### Postdocs:

2023 – current Yu Wang, University of Georgia.

### PhD Students:

2023 – current Sayan Chattopadhyay (co-supervising together with Pierrick Bousseau), University of Georgia.

### BSc/Honors/MSc students:

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

2023 DRP mentor of Kyle Jones (BSc), 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.

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## 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*.

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## Languages

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