

# Curriculum vitæ

Arnaud Maret

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## Employment

- **Université de Strasbourg**, ..... Nov 2024 - present  
Postdoctoral researcher at the Institut de Recherche Mathématique Avancée  
*Mentor*: Nalini Anantharaman.
- **Sorbonne Université**, ..... Nov 2022 - Oct 2024  
FSMP Postdoctoral researcher at the Institut de Mathématiques de Jussieu  
*Mentor*: Julien Marché

## Education

- PhD in Mathematics (cum laude), **Universität Heidelberg** .... Sep 2018 - Jul 2022  
Thesis title: *The symplectic geometry of surface group representations in genus zero*  
*Mentors*: Peter Albers & Anna Wienhard
- MSc in Mathematics (with distinction), **ETH Zürich**, ..... Sep 2016 - Jun 2018  
Thesis title: *Forcing relations for periodic orbits of surface homeomorphisms*  
*Mentor*: Will J. Merry
- Exchange program, **University of Waterloo**, ..... Sep 2015 - Jun 2016
- BSc in Mathematics, **EPFL Lausanne** ..... Sep 2013 - Jun 2016  
Thesis title: *The Hardy-Littlewood Circle Method and the Waring Problem*  
*Mentor*: Yu-Ru Liu (University of Waterloo, Canada)

## Research interest

Low dimensional geometry and topology, surface groups representations and character varieties, (higher) Teichmüller Theory, symplectic geometry, (complex) hyperbolic geometry, mapping class groups and dynamics on character varieties.

## Published papers

1. *Action-angle coordinates for surface group representations in genus zero*  
J. Symplectic Geom. **22** (2024). [arXiv:2110.13896](https://arxiv.org/abs/2110.13896) [math.GT]. (38 pages)
2. *Ergodicity of the mapping class group action on Deroin-Tholozan representations*  
Groups Geom. Dyn. **16** (2022). [arXiv:2012.05775](https://arxiv.org/abs/2012.05775) [math.DS]. (22 pages)

## Preprints

3. *Totally elliptic surface group representations*  
[arXiv:2411.19748](#) [[math.RT](#)], 2024. (16 pages)
4. *Mapping class group orbit closures for Deroin-Tholozan representations*  
with Y. Bouilly and G. Faraco. [arXiv:2411.10269](#) [[math.DS](#)], 2024. (39 pages)
5. *Tykhyy's Conjecture on finite mapping class group orbits*  
with S. Bronstein. [arXiv:2409.04379](#) [[math.DS](#)], 2024. (70 pages)
6. *The geometry of Deroin-Tholozan representations*  
with A. Fenyes. [arXiv:2312.09199](#) [[math.GT](#)], 2023. (33 pages)

## Editorial work

7. *Proceedings of the Young Researchers Workshop on Positivity in Lie Groups*  
with X. Flamm. [arXiv:2212.04339](#) [[math.DG](#)], 2022.

## Teaching

- **BSc lecture** Multiple, line, and surface integrals ..... Spring 2025  
University of Strasbourg, 6h/week, 80+ attendees (language: French)  
*Lecture notes* [available here](#).
- **Elective course** Dynamics on character varieties ..... Spring 2024  
Seoul National University, 6h total, 20+ attendees (language: English)
- **Elective course** Character varieties with a symplectic perspective ..... Spring 2022  
KIT Karlsruhe/University of Heidelberg, 6h total, 20+ attendees (language: English)  
*Lecture notes* [available here](#).
- **Student seminar** Hyperbolic geometry ..... Spring 2020  
University of Heidelberg, 2h/week, 14 attendees (language: German)
- **Student seminar** Differential geometry ..... Fall 2018  
University of Heidelberg, 2h/week, 14 attendees (language: German)
- **401-0614-00L** Probability and Statistics (TA), ETH Zürich. .... Spring 2018
- **MATH-106** Analyse 2 (TA), EPFL Lausanne. .... Spring 2015
- **MATH-101** Analyse 1 (TA), EPFL Lausanne. .... Fall 2014

## Mentoring and Outreach

- **Supervised bachelor thesis**
  - Noah Gil, Université de Strasbourg ..... Spring 2025
  - Frederik Kolb, University of Heidelberg ..... Spring 2022
- **Mathematical Olympiad** ..... Fall 2023 - present  
Training of Math Olympiad coaches in Bhutan and in Africa (Kenya, Uganda, Rwanda, Sudan, Tanzania, Burundi, Zambia, Ethiopia)

## Research stays

- **Institut Henri Poincaré** ..... May 2024 - Jun 2024  
Semester program on *Higher Rank Geometric Structures*,  
*Funding awarded by FSMP*.
- **Seoul National University** ..... May 2024  
Visiting Gye-Seon Lee.
- **Gakushuin University, Tokyo** ..... Jul 2023  
Visiting Ken'ichi Ohshika.
- **University of Maryland** ..... Sep 2022 - Oct 2022  
Visiting William M. Goldman,  
*Funding awarded by SFB/TR 191 "Symplectic structures in Geometry, Algebra and Dynamics"*.
- **Sorbonne Université** ..... Sep 2021 - Dec 2021  
Visiting Julien Marché,  
*Funding awarded by RTG 2229 "Asymptotic Invariants and Limits of Groups and Spaces"*.
- **Mathematical Sciences Research Institute (MSRI)** ..... Aug 2019  
Semester program on *Holomorphic Differentials in Mathematics and Physics*,  
*Funding awarded by MSRI*.

## Invited talks

23. **Web-seminar on Painlevé equations and related topics.** ..... May 2025  
*Hyperbolic triangle chains and finite mapping class group orbits.*
22. **Séminaire "Géométrie et groupes discrets"** ..... Apr 2025  
*Finite mapping class group orbits on character varieties.*
21. **Geometry Seminar, University of Milano-Bicocca.** ..... Mar 2025  
*Finite mapping class group orbits on character varieties.*

20. **Séminaire de géométrie et dynamique, Cergy-Pontoise.** ..... Jan 2025  
*Totally elliptic surface group representations.*
19. **Séminaire de Théorie ergodique, Université de Rennes.** ..... Dec 2024  
*Tykhyy's conjecture on finite mapping class group orbits on character varieties*
18. **Geometry Seminar, MPI Leipzig.** ..... Oct 2024  
*Finite mapping class group orbits on character varieties.*
17. **Séminaire Géométrie, Algèbre, Dynamique et Topologie, Université de Bourgogne.** ..... Sep 2024  
*Finite orbits on character varieties.*
16. **Séminaire Géométrie et applications, Université de Strasbourg.** .. Mar 2024  
*Discrete totally elliptic surface group representations.*
15. **Symplectic Zoominar, IAS Princeton (online).** ..... Dec 2023  
*Complex projective spaces and surface group representations.*
14. **Séminaire de théorie spectrale et géométrie, Institut Fourier.** ..... Nov 2023  
*Totally elliptic surface group representations.*
13. **Séminaire de Géométrie, Université Claude Bernard Lyon 1.** ..... Oct 2023  
*Complex projective spaces and surface group representations.*
12. **Workshop on metrics on higher Teichmüller spaces, Fréjus.** ..... Aug 2023  
*Shear coordinates for the Weil-Petersson symplectic form.*
11. **Tuesday Seminar on Topology, University of Tokyo.** ..... Jul 2023  
*Moduli spaces of triangle chains.*
10. **Symplectix, Institut Henri Poincaré.** ..... Apr 2023  
*Action-angle coordinates for character varieties à la Kapovich–Millson.*
9. **Séminaire Géométrie et Topologie, Sorbonne Université.** ..... Feb 2023  
*Representations of surface groups away from Teichmüller space.*
8. **Geometry and Topology Seminar, University of Iowa.** ..... Jan 2023  
*The two natures of connected components of character varieties.*
7. **Geometry-Topology Seminar, University of Maryland.** ..... Sep 2022  
*Compact spaces of surface group representations in genus zero.*
6. **Geometry Graduate Colloquium, ETH Zürich.** ..... Oct 2021  
*Character varieties, mapping class group action and ergodicity.*
5. **Geometry Seminar, ETH Zürich.** ..... Oct 2021  
*Remarkable surface group representations in genus zero.*

4. **Geometry and Topology Seminar, University of Bristol.** ..... Oct 2021  
*Remarkable surface group representations in genus zero.*
3. **Hauptseminar Symplectische Geometrie, Universität Heidelberg.** .Jun 2018  
*Forcing relations for periodic orbits of surface homeomorphisms.*
2. **Symplectic Geometry Seminar, JLU Giessen.** .....Mar 2018  
*Forcing relations for periodic orbits of surface homeomorphisms.*
1. **Oberseminar Dynamische Systeme, Ruhr-Universität Bochum.** ...Mar 2018  
*Forcing relations for periodic orbits of surface homeomorphisms.*

## Short presentations

2. **Ventotene International Workshops: Counting problems,** ..... Sep 2021  
*Lightening talk on Deroin-Tholozan representations.*
1. **CMI-HIMR Dynamics and Geometry Online Summer School, University of Bristol,** .....Jun 2021  
*Lightening talk on character varieties and mapping class group action.*

## Organizing

- **Interplay between symplectic geometry and cluster theory,** .....Spring 2023  
IWH Heidelberg,  
*Co-organizers:* Maria Bertozzi, Alexandre Jannaud.
- **Workshop on Positivity in Lie Groups,** ..... Spring 2022  
IWH Heidelberg,  
*Co-organizer:* Xenia Flamm.
- **RTG Seminar on Dynamics in one complex variable,** .....Fall 2021  
KIT Karlsruhe/Universität Heidelberg
- **Reading seminar on infinite dimensional symplectic reduction,** . Spring 2021  
Universität Heidelberg.
- **Reading seminar on Bridgeland's stability conditions for meromorphic differentials,**.....Fall 2020  
Universität Heidelberg,  
*Co-organizer:* Beatrice Pozzetti.
- **RTG Seminar on Topological K-Theory,** ..... Spring 2020  
KIT Karlsruhe/Universität Heidelberg.
- **Reading seminar on Dynamics of Teichmüller space,** .....Spring 2019  
Universität Heidelberg,  
*Co-organizers:* Peter Albers, Anna Wienhard.

- **RTG Seminar on Rational Homotopy Theory**, .....Spring 2019  
KIT Karlsruhe/Universität Heidelberg,  
*Co-organizers*: Urs Fuchs, Anna-Maria Vocke.

## Conferences and workshops attended

- (Sep 2025) Ventotene International Workshops: Higher dimensional hyperbolic geometry, Ventotene, Italy.
- (Aug 2025) Workshop on Universal Teichmüller theory, Aussois, France.
- (Jan 2025) Workshop on Berkovich geometry and character varieties, ENS Paris, France.
- (Oct 2024) Conference “20 years of Anosov representations”, Leipzig, Germany.
- (Aug 2024) Workshop on Components of character varieties, Aussois, France.
- (Apr 2024) Workshop on Submanifolds of locally symmetric spaces: geometric, analytic and dynamical aspects, Autrans, France.
- (Aug 2023) Summer workshop on Metrics on higher Teichmüller spaces, Fréjus, France.
- (Aug 2023) Workshop on Teichmüller Theory: Classical, Higher, Super and Quantum, Oberwolfach, Germany.
- (Feb 2023) Summer school on Topics on the Geometry of Locally Symmetric Spaces, Montevideo, Uruguay.
- (Jan 2023) Workshop on Interplay between symplectic geometry and cluster theory, IWH Heidelberg.
- (Jul 2022) Marc Burger’s Prime, Zürich, Switzerland.
- (Jun 2022) Groups, Geometry and Dynamics, A conference in honor of François Labourie, Cargèse, France.
- (Mai 2022) Weak KAM theory - XXV years later, Avignon, France.
- (Jan 2022) Workshop on Positivity in Lie Groups, IWH Heidelberg.
- (Nov 2021) Young researchers meeting of the GDR Platon, CIRM Marseille.
- (Sep 2021) Ventotene International Workshops: Counting problems, Ventotene, Italy.
- (Aug 2021) Workshop on Anosov representations, Aussois, France.
- (Jun 2021) CMI-HIMR Dynamics and Geometry Online Summer School (online), University of Bristol.

- (Jan 2021) Topics at the Interface of Low Dimensional Group Actions and Geometric Structures (online), National University of Singapore.
- (Nov 2020) 15th International Young Researchers Workshop on Geometry, Mechanics and Control (online), Universiteit Utrecht.
- (Oct 2020) Symposium: Mathematics in Sciences, Engineering and Economics (online), KIT Karlsruhe.
- (Oct 2020) Teichmüller Theory: Classical, Higher, Super and Quantum (online), CIRM Marseille.
- (Jun 2020) Nearly Carbon Neutral Geometric Topology Conference (online).
- (Feb 2020) Winter School on Invariant Function Theorems, JLU Giessen.
- (Feb 2020) CAST 2020: XIV Workshop on Symplectic Geometry, Contact Geometry, and Interactions, Universiteit Antwerpen.
- (Nov 2019) Geometric Dynamics Days, RWTH Aachen University.
- (Aug 2019) Workshop on bounded cohomology, Universität Heidelberg.
- (May 2019) Workshop on Geometry, Topology and Computation, Universität Heidelberg.
- (Apr 2019) Graduate school on Geometry of Teichmüller spaces, Simons Center, Stony Brook University, NY.
- (Mar 2019) CAST 2019: XIII Workshop on Symplectic Geometry, Contact Geometry, and Interactions, Humboldt University, Berlin.
- (Mar 2019) Symposium: Geometry, Topology, Analysis and Dynamical systems, Universität Heidelberg.
- (Feb 2019) Geometric Analysis meets Geometric Topology, Universität Heidelberg.
- (Nov 2018) Geometric Dynamics Days, JLU Giessen.
- (Nov 2018) Workshop on Computational Topology and Topological Data Analysis, Heidelberg Institute for Theoretical Studies.
- (Aug 2018) Summer School on Equivariant Symplectic Homology, JLU Giessen.

## **Mathematical Olympiad activities**

- Board member of the Swiss Science Olympiad, Jun 2022-Jun 2024.
- Academic director of the Swiss Mathematical Olympiad, Dec 2017-Dec 2022.
- Team leader for Switzerland at the International Mathematical Olympiad (IMO), 2016-2018 and 2020.
- Member of the problem selection committee at the IMO 2022, 2023, and 2025.

## **Languages**

- French (mother tongue)
- English (fluent)
- German (fluent)