

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. *Mapping class group orbit closures for Derooin-Tholozan representations*
with Y. Bouilly and G. Faraco.
J. Mod. Dyn. (to appear, 2025) [arXiv:2411.10269 \[math.DS\]](#). (39 pages)
2. *Action-angle coordinates for surface group representations in genus zero*
J. Symplectic Geom. **22** (2024). [arXiv:2110.13896 \[math.GT\]](#). (38 pages)
3. *Ergodicity of the mapping class group action on Derooin-Tholozan representations*
Groups Geom. Dyn. **16** (2022). [arXiv:2012.05775 \[math.DS\]](#). (22 pages)

Preprints

4. *Totally elliptic surface group representations*
[arXiv:2411.19748 \[math.RT\]](#), 2024. (16 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 Derooin-Tholozan representations*
with A. Fenyés. [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.
8. *A note on character varieties*
[Available here](#), 2025. (96 pages)

Teaching

- **BSc lectures** Multiple, line, and surface integrals Spring 2025 & 2026
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

- **Supervision**
 - Noah Gil, Bachelor thesis, Université de Strasbourg Spring 2025
 - Frederik Kolb, Semester project, 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

27. **Character varieties and Higgs bundles, University of Queensland,** . Feb 2026
TBD.
26. **Séminaire de Géométrie et Topologie de Marseille.** Jan 2026
TBD.
25. **Séminaire de Systèmes dynamiques, Analyse et Géométrie, Avignon Université.** Nov 2025
TBD.
24. **Séminaire Géométrie et applications, Université de Strasbourg.** .. Sep 2025
Topological dynamics on character varieties.
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”, IHES Paris.** 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
Lightning talk on Deroin-Tholozan representations.
1. **CMI-HIMR Dynamics and Geometry Online Summer School, University of Bristol,** Jun 2021
Lightning talk on character varieties and mapping class group action.

Organizing

- **Workshop on Clifford–Klein forms** Summer 2026
Location TBD
Co-organizers: Samuel Bronstein, Farid Diaf, Blandine Galiay
- **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

- (Feb 2026) Conference “Character varieties and Higgs bundles”, The University of Queensland, Australia.
- (Sep 2025) Workshop Groups, dynamics and surfaces in Paris, Jussieu, France.
- (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”, MPI 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 OlympiadJun 2022-Jun 2024.
- Academic director of the Swiss Mathematical OlympiadDec 2017-Dec 2022.
- Team leader for Switzerland at the IMO2016-2018 and 2020.
- Member of the IMO problem selection committee 2022-2023 and 2025.

Languages

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