

William SAREM

Office 113
Institut Fourier
100, rue des maths
38610 Gières

Year of birth: 1999
French nationality

Email address: william.sarem@univ-grenoble-alpes.fr
Website: <http://williamsarem.github.io>

Education

2023 – 2026	PhD Student at Institut Fourier, Grenoble Alpes University, supervised by Pierre Py. Defended on 5 December 2025. Title: Stein quotients via Patterson-Sullivan theory and the Shafarevich conjecture.
2019 – 2023	Student at École Normale Supérieure de Lyon.
2021 – 2022	Master's degree in Pure Mathematics (University of Strasbourg).
2019	Bachelor's degree in Applied Mathematics (Paris Dauphine University).
2017 – 2019	CPES Multidisciplinary Undergraduate degree: Bachelor's degree in Mathematics (Paris Sciences et Lettres University).

Publications

1. *Holomorphic functions on geometrically finite quotients of the ball*. Journal de l'École Polytechnique — Mathématiques, Tome 13 (2026), pp. 321-348. doi: 10.5802/jep.328.
2. *Curvature properties and Shafarevich conjecture for toroidal compactifications of ball quotients*. Journal of Differential Geometry (to be published). arXiv : 2306.07692.

Research seminar talks

November 2026	<i>Forthcoming talk</i> : Conference on Complex Geometry, Daejeon, Korea
February 2026	Séminaire Géométrie et Applications, IRMA, Strasbourg . <i>Entropy, holomorphic convexity, and locally symmetric spaces.</i>
December 2025	Séminaire Géométrie et Topologie, LMBA, Brest . <i>Entropie, convexité holomorphe et espaces localement symétriques.</i>
November 2025	Séminaire de Géométrie et Topologie, IMJ-PRG, Paris . <i>Sous-ensembles analytiques compacts dans des espaces quotients.</i>
October 2025	Séminaire de Géométrie, Groupes et Dynamique, UMPA, Lyon . <i>Sous-ensembles analytiques compacts dans des espaces quotients.</i>
July 2025	Oberseminar (2 x 90min) , Mathematisches Institut, Bayreuth . <i>Toroidal compactifications of ball quotients and Shafarevich conjecture.</i>
April 2025	Short talk: Geometric structures and discrete group actions, CIRM , Marseille. <i>Holomorphic properties of ball quotients: towards a higher rank generalization?</i>
March 2025	Séminaire Géométrie Complexe, IECL, Nancy . <i>Propriétés holomorphes des quotients de la boule et exposant critique.</i>
January 2025	Séminaire Algèbre, Topologie et Géométrie, LJAD, Nice . <i>Holomorphic properties of ball quotients.</i>
January 2025	Séminaire Géométrie Analytique, IRMAR, Rennes . <i>Propriétés holomorphes des quotients de la boule.</i>
December 2024	Séminaire Algèbre et Géométries, Institut Fourier, Grenoble . <i>Propriétés holomorphes des quotients de la boule.</i>
November 2024	Séminaire Géométrie et Topologie, I2M, Marseille . <i>Propriétés holomorphes des quotients de la boule par un groupe d'exposant critique petit.</i>
October 2023	Séminaire Géométrie, IMB, Bordeaux . <i>Compactifications toroïdales de quotients de la boule et conjecture de Shafarevich.</i>
October 2023	Séminaire Algèbre et Géométries, Fourier Institute, Grenoble . <i>Conjecture de Shafarevich pour les compactifications toroïdales de quotients de la boule.</i>
June 2023	Séminaire Géométrie Analytique, IRMAR, Rennes . <i>Propriétés de courbure et conjecture de Shafarevich pour les compactifications toroïdales de quotients de la boule.</i>
June 2023	Short talk: Alpine meeting on nonpositive curvature in Kähler geometry, Aussois .

June 2022 *Curvature properties for toroidal compactifications of ball quotients.*
 GT3 seminar, IRMA, **Strasbourg**.
Variétés de Stein et sous-groupes de $PU(n, 1)$.

PhD seminar talks

June 2025 UMPA, **ENS de Lyon**.
The Poincaré disk, its complex generalization and holomorphic functions.
 June 2025 Fourier Institute, **Grenoble**.
The Poincaré disk, its complex generalization and holomorphic functions.
 March 2025 IRMA, **Strasbourg**.
The Poincaré disk, its complex generalization and holomorphic functions..
 May 2024 LMPA, **Calais**.
Le disque de Poincaré, sa généralisation complexe et leurs fonctions holomorphes.
 April 2024 Rencontres Doctorales Lebesgue, **Angers**.
The complex hyperbolic space and its holomorphic functions.
 March 2024 Fourier Institute, **Grenoble**.
The Poincaré disk, its complex generalization and holomorphic functions.
 March 2023 IRMAR, **Rennes**.
La formule de Matsushima.
 December 2022 **ETH Zürich**.
Harmonic forms and cohomology in smooth (complex) manifolds.

Research stays

Jan.–Feb. 2026 Visiting **Benoît Cadorel**, IECL, Nancy, 2 months.
 July 2025 Visiting **Mihai Păun**, Mathematisches Institut, Bayreuth, 1 week.
 July 2025 Visiting **Christian Miebach**, ULCO, Calais, 1 week.
 May 2024 Visiting **Christian Miebach**, ULCO, Calais, 3 days.
 January 2024 Visiting **Simone Diverio**, la Sapienza, Rome, 1 week.

Attended conferences

April 2026 *Forthcoming conference:* Complex Analysis, Oberwolfach, Germany.
 April 2025 Geometric structures and discrete group actions, CIRM, Marseille.
 February 2025 ANR meeting: L^2 Invariants, Grenoble.
 April 2024 PhD meeting: Rencontres Doctorales Lebesgue, Angers.
 November 2023 PhD meeting: Parole aux jeunes chercheuses et chercheurs du réseau Platon, Grenoble.
 July 2023 Lattices in Negative Curvature, Les Diablerets.
 June 2023 Alpine meeting on nonpositive curvature in Kähler geometry, Aussois.
 July 2022 Complex Hyperbolic Geometry and Related Topics, CIRM, Marseille.

Teaching at Grenoble Alpes University

2025 – 2026

- Lie Groups and Lattices (Master 2 course). 8h, Tutorials (in English).
- MAT101: Mathematical Language, Elementary Algebra and Geometry. 56h, Lectures and Tutorials.

2024 – 2025

- MAT236: Introduction to Mathematical Biology and Population Dynamics. 32h, Lectures and Tutorials.
- MAT101: Mathematical Language, Elementary Algebra and Geometry. 32h, Lectures and Tutorials.

2023 – 2024

- MAT236: Introduction to Mathematical Biology and Population Dynamics. 32h, Lectures and Tutorials (in English).
- MAT101: Mathematical Language, Elementary Algebra and Geometry. 32h, Lectures and Tutorials.

Responsabilities

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| 2025 | • PhD students' representative at the doctoral school MSTII. |
| 2024 – 2025 | • Organizer of the Séminaire Compréhensible.
This is the PhD seminar of the Fourier Institute. |
| | • Organizer of the PhD days of the Fourier Institute.
This consists in 4 days of talks given by PhD students. |

Outreach

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| 2021 | (with V. Issa) <i>À la recherche des triplets pythagoriciens</i> , Image des Maths. |
| 2021 | (with M. Passard) <i>Pratique de la recherche en mathématiques</i> , J. de Math. de l'École, Lyon. |

Other scientific activities

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| 2025 – ... | Reviewer service, zbMATH Open. |
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Languages spoken

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| French | Native speaker |
| English | Fluent |