

# William SAREM

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## Education

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| 2023 – ...  | PhD Student at Institut Fourier, Grenoble Alpes University, supervised by Pierre Py.<br>Title: Complex hyperbolic geometry and uniformization. |
| 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).                          |

## Preprints

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| 2024 | Holomorphic functions on geometrically finite quotients of the ball (arXiv), submitted.                              |
| 2023 | Curvature properties and Shafarevich conjecture for toroidal compactifications of ball quotients (arXiv), submitted. |

## Research seminar talks

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| July 2025    | Oberseminar (2 x 90min) , Mathematisches Institut, <b>Bayreuth</b> .<br><i>Toroidal compactifications of ball quotients and Shafarevich conjecture.</i>                              |
| April 2025   | Short talk: Geometric structures and discrete group actions, <b>CIRM</b> , Marseille.<br><i>Holomorphic properties of ball quotients: towards a higher rank generalization?</i>      |
| March 2025   | Séminaire Géométrie Complexe, IECL, <b>Nancy</b> .<br><i>Propriétés holomorphes des quotients de la boule et exposant critique.</i>  |
| January 2025 | Séminaire Algèbre, Topologie et Géométrie, LJAD, <b>Nice</b> .<br><i>Holomorphic properties of ball quotients.</i>   |
| January 2025 | Séminaire Géométrie Analytique, IRMAR, <b>Rennes</b> .<br><i>Propriétés holomorphes des quotients de la boule.</i>   |
| Decem. 2024  | Séminaire Algèbre et Géométries, Institut Fourier, <b>Grenoble</b> .<br><i>Propriétés holomorphes des quotients de la boule.</i>   |
| Novem. 2024  | Séminaire Géométrie et Topologie, I2M, <b>Marseille</b> .<br><i>Propriétés holomorphes des quotients de la boule par un groupe d'exposant critique petit.</i>                        |
| October 2023 | Séminaire Géométrie, IMB, <b>Bordeaux</b> .<br><i>Compactifications toroïdales de quotients de la boule et conjecture de Shafarevich.</i>  |
| October 2023 | Séminaire Algèbre et Géométries, Fourier Institute, <b>Grenoble</b> .<br><i>Conjecture de Shafarevich pour les compactifications toroïdales de quotients de la boule.</i>            |
| June 2023    | Séminaire Géométrie Analytique, IRMAR, <b>Rennes</b> .<br><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, <b>Aussois</b> .<br><i>Curvature properties for toroidal compactifications of ball quotients.</i>            |
| June 2022    | GT3 seminar, IRMA, <b>Strasbourg</b> .<br><i>Variétés de Stein et sous-groupes de <math>PU(n, 1)</math>.</i>   |

## PhD seminar talks

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

## Research stays

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| July 2025    | Visiting <b>Mihai Păun</b> , Mathematisches Institut, Bayreuth, 1 week . |
| July 2025    | Visiting <b>Christian Miebach</b> , ULCO, Calais, 1 week.                |
| May 2024     | Visiting <b>Christian Miebach</b> , ULCO, Calais, 3 days.                |
| January 2024 | Visiting <b>Simone Diverio</b> , la Sapienza, Rome, 1 week.              |

## Attended conferences

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| 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.                                 |
| Novem. 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

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| 2025 – 2026 | • MAT101: Mathematical Language, Elementary Algebra and Geometry.<br>64h, Lectures and Tutorials.   |
| 2024 – 2025 | • MAT236: Introduction to Mathematical Biology and Population Dynamics.<br>32h, Lectures and Tutorials.<br>• MAT101: Mathematical Language, Elementary Algebra and Geometry.<br>32h, Lectures and Tutorials.              |
| 2023 – 2024 | • MAT236: Introduction to Mathematical Biology and Population Dynamics.<br>32h, Lectures and Tutorials (in English).<br>• MAT101: Mathematical Language, Elementary Algebra and Geometry.<br>32h, Lectures and Tutorials. |

## Responsibilities

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| 2025        | • <b>PhD students' representative</b> at the doctoral school MSTII.   |
| 2024 – 2025 | • <b>Organizer of the Séminaire Compréhensible.</b><br>This is the PhD seminar of the Fourier Institute.<br>• <b>Organizer of the PhD days of the Fourier Institute.</b><br>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. |

## Languages spoken

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| French  | Native speaker |
| English | Fluent         |