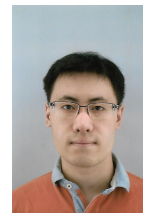


David Xu

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Presentation

I am currently an ATER (research and teaching assistant) at the school of marketing and management of Université Paris-Saclay. I am attached to the Institut de Mathématiques d'Orsay in the department of Topology and Dynamics.

I am also a doctoral student in the Université de Lorraine, however I am now based at Université Paris-Saclay since September 2023.

My research interests lie primarily in the *geometry of hyperbolic spaces*, *geometric group theory*, *topology* and *representation theory*, mostly in *infinite dimension*.

My main object of study is the group of isometries of the infinite-dimensional hyperbolic space and its discrete subgroups.

Education

- 2020–2024 **Ph.D. in Mathematics**, *Université de Lorraine*, Nancy, Topology and geometry of the isometry groups of symmetric spaces of infinite dimension.
Supervised by Bruno Duchesne and Gye-Seon Lee
- 2019–2020 **Master degree in Mathematics**, *Université de Strasbourg*, Strasbourg.
- 2018–2019 **Agrégation externe de Mathématiques, option D Informatique**, *ENS Rennes and Université de Rennes 1*, Rennes, rank : 110.
- 2016–2018 **Bachelor degree in Computer Science**, *ENS Rennes and Université de Rennes 1*, Rennes.
- 2016–2017 **Bachelor degree in Mathematics**, *ENS Rennes and Université de Rennes 1*, Rennes.

Publications and preprints

- 2024 **Convex-cocompact representations into the isometry group of the infinite-dimensional hyperbolic space**, *Preprint (submitted)*, [Arxiv link](#).

Invited talks

- 27 May 2024 **Ergodic theory seminar**, *IRMAR*, Rennes.
(Upcoming) Ergodic theory seminar
- 18 April 2024 **Workshop on Submanifolds of locally symmetric spaces**, *ANR GAPR*, Autrans.
Conference talk : "Deformations of convex-cocompact representations into the isometry group of the infinite-dimensional hyperbolic space"
- 13 February 2024 **PS-SNU Geometry/Topology Online Seminar**.
(Half-)online seminar : "Deformations of convex-cocompact representations into the isometry group of the infinite-dimensional hyperbolic space"
- 8 June 2023 **Pampers Seminar**, *IRMAR*, Rennes.
Rennes' Ph.D. students' seminar : "Représentations convexes cocompactes dans le groupe des isométries de l'espace hyperbolique de dimension infinie"
- 3 May 2023 **Ph.D. Students' Seminar**, *IECL*, Nancy.
Lorraine's Ph.D. students seminar : "L'ensemble de Mandelbrot, et un tour de magie"

- 30 January 2023 **GOA Seminar**, *IMO*, Orsay.
Groups and Operator Algebras seminar of Orsay : "Convex cocompact representations into the group of isometries of the infinite dimensional hyperbolic space"
- 19 May 2022 **Ph.D. Students' Seminar**, *IRMA*, Strasbourg.
Strasbourg's Ph.D. students seminar : "Représentations convexes cocompactes dans le groupe des isométries de l'espace hyperbolique de dimension infinie"
- 12 May 2022 **Ph.D. Students' Seminar**, *Institut Fourier*, Grenoble.
Grenoble's Ph.D. students seminar : "Convex cocompact representations into the isometry group of the infinite dimensional hyperbolic space"
- 23 September 2021 **"Groupes et géométrie" meeting at "la maison du Kleebach"**, *ANR AGIRA*, Kleebach.
"Groupes de réflexions agissant sur l'espace hyperbolique de dimension infinie"
- 29 April 2021 **Ph.D. Students' Seminar**, *IRMA*, Strasbourg.
Strasbourg's Ph.D. students seminar : "Algèbres de Clifford"

Attended conferences and meetings

- February 2023 **Young Geometric Group Theory XI**, *WWU Münster*, Münster, Germany.
- November 2022 **Paroles aux jeunes chercheuses et chercheurs du GDR Platon 2022**, *IMO*, Orsay, France.
- October 2022 **Big Mapping Class Groups and Diffeomorphism Groups**, *CIRM*, Marseille, France.
- June 2022 **Trimestre thématique de l'IHP « Groups acting on fractals, hyperbolicity and self-similarity - Hyperbolic groups and their generalisations »**, *IHP*, Paris, France.
- May 2022 **Trimestre thématique de l'IHP « Groups acting on fractals, hyperbolicity and self-similarity - Self-similarity of groups, trees and fractals »**, *IHP*, Paris, France.
- November 2021 **Rencontre des jeunes chercheuses et jeunes chercheurs du GDR Platon 2021**, *CIRM*, Marseille, France.
- August 2021 **Delzantfest**, *IHES*, Orsay, France.
Celebrating the 60 years anniversary of Thomas Delzant
- January 2021 **Topics at the interface of low-dimensional group actions and geometric structures**, *National University of Singapore*, Singapore.
Online conference
- December 2020 **Paroles aux jeunes géomètres dynamiques du réseau Platon 2020**.
Online conference
- October 2020 **Théorie mesurée et géométrie des groupes, rigidité, algèbres d'opérateurs**, *CIRM*, Marseille, France.

Teaching

- 2023–2024 **Mathematical tools for Management**, *IUT de Sceaux*, Sceaux, for 1st year undergraduate students in management and marketing.
Spring semester Lectures and classes
- Digital data processing**, *IUT de Sceaux*, Sceaux, for 2nd year undergraduate students in management and marketing.
Lectures and classes (statistics)
- 2023–2024 **Mathematical tools for Management**, *IUT de Sceaux*, Sceaux, for 1st year undergraduate students in management and marketing.
Fall semester Lectures and classes
- Numerical tools for management**, *IUT de Sceaux*, Sceaux, for 2nd year undergraduate students in management and marketing.
Integrated courses (probability)

- Numerical tools for management**, *IUT de Sceaux*, Sceaux, for 2nd year undergraduate students in management and marketing.
Classes (probability)
- 2022–2023 **Mathematics**, *Université de Lorraine*, Nancy, for 1st year undergraduate students in engineering curriculum.
Fall semester Lectures and classes
- Financial mathematics**, *IUT Nancy-Charlemagne*, Nancy, for 1st year undergraduate students in management.
Tutorials
- 2021–2022 **Numerical methods**, *Université de Lorraine*, Nancy, for 2nd year undergraduate students in mathematics.
Fall semester Classes and practical work (Matlab)
- Analysis**, *Université de Lorraine*, Nancy, for 2nd year undergraduate students in mathematics.
Classes
- Numerical analysis**, *ENSEM*, Nancy, for 3rd year undergraduate students in engineering school.
Classes and practical work (Matlab)
- 2020–2021 **Numerical methods**, *Université de Lorraine*, Nancy, for 2nd year undergraduate students in mathematics.
Fall semester Classes and practical work (Matlab)
- Mathematical tool for management**, *IUT Nancy-Charlemagne*, Nancy, for 1st year undergraduate students in management and marketing.
Classes

Grants, awards and honors

- 2020–2021 **LUE Graduate**, *Lorraine Université d'Excellence*, Nancy.
Grant from the *DrEAM* project for funding a two months visit at *Seoul National University*, Seoul, South Korea

Internships

- March–April **Visiting student**, *Seoul National University*, Seoul, South Korea.
2022 Visit of Seoul National University funded by the *DrEAM* project from LUE "Lorraine Université d'Excellence", supervised by Gye-Seon Lee
- May–July **Master internship**, *Institut Elie Cartan*, Nancy, France.
2020 Master internship on the "isometries of the infinite-dimensional hyperbolic space", supervised by Bruno Duchesne
- May–July **Master internship**, *Mathematisches Institut der Universität Heidelberg*, Heidelberg, Germany.
2018 Master internship on "hyperbolic geometry", supervised by Anna Wienhard and Gye-Seon Lee
- May–June **Bachelor internship**, *Institut Camille Jordan*, Lyon, France.
2017 Bachelor internship on "valued fields in model theory", supervised by Itaï Ben Yaacov
- May 2013 **Highschool internship**, *Institut Camille Jordan*, Lyon, France.
Highschool "discovery" internship organised by the association *Science Académie* on differential equations in compartmental models (SIR model)

Some other experiences and responsibilities

- 2021–2023 **MATH.en.JEANS**, *Collège Edmond de Goncourt*, Pulnoy.
Animating *MATH.en.JEANS* workshops for middle school students
- 2020–2022 **Doctoral students' representative in the doctoral school IAEM**, *Université de Lorraine*, Nancy.

- June 2017 **Exam preparation tutor**, *Lycée La Martinière Monplaisir*, Lyon.
Tutoring for the oral competitive exams of CPGE
- 2016 **Tutor**, *Lycée Émile Zola*, Rennes.
Tutoring for highschool students
- March 2013 **Music teacher**, *École de musique Guy Candeloro*, Lyon.
Replacing a music theory teacher and an accordion teacher in a music school for 1 month