

## Employment and education

- 2024– **Postdoc**, LAMFA, Université de Picardie Jules Verne
- 2021–2024 **PhD**, LISN, Université Paris Saclay, supervised by Nathalie Aubrun,  
Title : "Subshifts of Finite Type on Groups : Emptiness and Aperiodicity"
- 2020–2021 **Master 2 Mathématiques fondamentales**, I2M, Université d'Aix-Marseille, supervised by  
Pierre Guillon and Etienne Moutot, Title : "Domino Problem on Groups"
- 2019–2020 **Master in Applied Mathematics**, Universidad de Chile, supervised by Alejandro Maass and  
Sebastián Donoso, Title : "Contributions to the study of distortion in automorphism groups"
- 2014–2019 **Civil Mathematical Engineering**, Universidad de Chile
- 2017–2018 **Minor in Quantum Physics**, Universidad de Chile
- 2014–2018 **Bachelor's degree in engineering sciences, mention mathematics**, Universidad de Chile

## Publications

### Journals

- 2025 **Realizability of Subgroups by Subshifts of Finite Type**,  
Groups, Geometry and Dynamics (to appear), <https://doi.org/10.4171/ggd/900>
- 2024 **Self-Avoiding Walks on Cayley Graphs Through the Lens of Symbolic Dynamics**,  
with Nathalie Aubrun, <https://doi.org/10.37236/13065>,  
Electronic Journal of Combinatorics issue 31 volume 4, article number P4.24, 44 pages
- 2024 **Strongly Aperiodic SFTs on Generalized Baumslag-Solitar groups**,  
with Nathalie Aubrun and Sacha Huriot-Tattergrain,  
<https://doi.org/10.1017/etds.2023.44>,  
Ergodic Theory and Dynamical Systems issue 44 volume 5 pages 1209-1238
- 2022 **Computational Complexity of Biased Diffusion-Limited Aggregation**,  
with Eric Goles and Pedro Montealegre, <https://doi.org/10.1137/18M1215815>,  
SIAM Journal on Discrete Mathematics volume 36 issue 1 pages 823-866

### Book Chapters

- 2022 **Distortion in Automorphisms of Expansive Systems**, with Sebastián Donoso and Alejandro  
Maass, [https://doi.org/10.1007/978-3-030-92551-2\\_3](https://doi.org/10.1007/978-3-030-92551-2_3),  
Automata and Complexity : Essays Presented to Eric Goles on the Occasion of His 70th  
Birthday, pp 21–41, 2022

### Conference Proceedings

- 2024 **Contributions to the Domino Problem : Seeding, Recurrence and Satisfiability**, pages 17:1 - 17:18, <https://doi.org/10.4230/LIPIcs.STACS.2024.17>, 41st International Symposium on Theoretical Aspects of Computer Science (STACS 2024)
- 2023 **Domino Snake Problems on Groups**, with Nathalie Aubrun, pages 46-59, [https://doi.org/10.1007/978-3-031-43587-4\\_4](https://doi.org/10.1007/978-3-031-43587-4_4), 24th International Symposium on Fundamentals of Computation Theory (FCT 2023)

### Pré-publications

- 2025 **A general framework for quasi-isometries in symbolic dynamics beyond groups**, with Sebastián Barbieri, arXiv Preprint, <https://arxiv.org/abs/2504.>

## Talks, seminar and event organization

### Invited talks

- 12/2025 **Dynamics in Patagonia**, *Substitutive and S-adic systems beyond abelian groups*, <https://eventos.cmm.uchile.cl/maass60/>
- 07/2025 **Dyadisc 8**, *Understanding subshifts and cellular automata on groups through snakes*, <https://dyadisc8.sciencesconf.org/>
- 12/2024 **Dyadisc 7**, *Substitutions on countable groups*, <https://dyadisc7.sciencesconf.org/>
- 06/2024 **TCA 2024**, *Self-Avoiding Walks and Symbolic Dynamics*, <https://sites.google.com/fct.unl.pt/t-c-algebra/homepage>

### International Conferences

- 03/2024 **STACS 2024**, *Contributions to the Domino Problem : Seeding, Recurrence and Satisfiability*
- 09/2023 **FCT 2023**, *Domino Snake Problems on Groups*

### Seminars, workshops, and national meetings

- 01/2026 **Dynamical Systems Seminar**, *Topological minimal self-joinings on groups*, Jagiellonian University, Kraków
- 08/2025 **Seminario de Sistemas Dinámicos**, *Sistemas substitutivos y S-ádicos en grupos*, Universidad de Chile, Santiago
- 06/2025 **Journées sda2**, *Subshifts of finite type and quasi-isometries beyond groups*, LIRMM, Montpellier
- 04/2025 **Séminaire Algorithmique GREYC**, *Subshifts of finite type and quasi-isometries beyond groups*, GREYC, Caen
- 04/2025 **Séminaire Rauzy**, *Systèmes S-adiques et substitutifs au-delà des groupes abéliens*, I2M, Marseille
- 03/2025 **Mocqua Seminar**, *Subshifts of finite type and quasi-isometries beyond groups*, LORIA, Nancy

- 03/2025 **Groupe de travail en Probabilités, Théorie Ergodique et Systèmes Dynamiques**, *S-adic and substitutive systems for countable groups*, LMRS, Rouen
- 11/2024 **Séminaire SymPA**, *Symbolic Dynamics, Groups and Self-Avoiding Walks*, LAMFA, Amiens
- 05/2024 **Journées sda2**, *Are Cayley graphs diabolical?*, LIFO, Orléans
- 02/2024 **Complexity of Simple Dynamical Systems in honor of Jarkko Kari's 60th birthday**, *Snakes, SAWs and Symbolic Dynamics*, CIRM, Marseille
- 02/2024 **Research School in Discrete Mathematics and Computer Science**, *Substitutions and Hierarchical Structures on Countable Groups*, CIRM, Marseille
- 12/2023 **XCI Encuentro Anual de la SOMACHI**, *Caminos Autoevitantes desde la Dinámica Simbólica*, Universidad de Chile, Santiago
- 09/2023 **Séminaire des Mathématiques Discrètes**, *Domino Snake Problems on Groups*, Université de Liège
- 08/2023 **Seminario de Sistemas Dinámicos**, *SFTs Aperiódicos para Grupos de Baumslag-Solitar Generalizados*, Universidad Católica de Chile, Santiago
- 08/2023 **Coloquio DMCC**, *Problema del Dominó y Aperiodicidad en grupos*, Universidad de Santiago de Chile
- 06/2023 **EJCIM 2023**, *Dissecting the Infinite Domino Snake Problem*, XLIM, Poitiers
- 05/2023 **Journées des Doctorants 2023**, *Subshifts of Finite Type on Groups - Emptiness and Aperiodicity*, LISN, Gif-sur-Yvette
- 04/2023 **Séminaire SePAG**, *An Invitation to the Domino Problem*, LISN, Gif-sur-Yvette
- 03/2023 **Journées sda2**, *Realizability of Subgroups by SFTs*, Institut de Mathématiques de Toulouse
- 03/2023 **Journées de l'ANR C\_SyDySi**, *The Domino Snake Problem*, LIFO, Orléans
- 03/2023 **Séminaire GALaC**, *The Domino Snake Problem*, LISN, Gif-sur-Yvette
- 01/2023 **Séminaire Doctorant**, *Symbolic dynamics on groups : Emptiness and Aperiodicity*, LAMFA, Amiens
- 01/2023 **Séminaire DGeCo**, *Symbolic dynamics on groups : Emptiness and Aperiodicity*, IMJ-PRG, Paris
- 10/2022 **Séminaire SymPA**, *Strongly Aperiodic SFTs on Generalized Baumslag-Solitar groups*, LAMFA, Amiens
- 06/2022 **Journées sda2**, *Strongly Aperiodic SFTs on Generalized Baumslag-Solitar groups*, Université de Liège
- 05/2022 **Séminaire GALaC**, *Tiling Groups : Emptiness and Aperiodicity*, LISN, Gif-sur-Yvette
- 07/2021 **Groupe de Travail Pytheas Fogg**, *Les simulations sur le groupe d'allumeur de réverbères*, I2M, Marseille
- 12/2017 **Automata Factory**, *Computational Complexity of restricted Diffusion Limited Aggregation*, Universidad Adolfo Ibañez, Santiago

## Posters

- 05/2024 **Young Geometric Group Theory XII**, *The  $k$ -SAT Problem on Groups*, University of Bristol
- 02/2024 **GATGA 2024**, *Sofic Skeletons*, CIRM

02/2024 **Research School in Discrete Mathematics and Computer Science**, *Sofic Skeletons*, CIRM

#### Article reviews

- 2025 **Groups, Geometry and Dynamics**, *Transactions of the AMS, Discrete and Continuous Dynamical Systems*
- 2023 **Mathematical Foundations of Computer Science (MFCS)**
- 2019-2021 **International Journal of Modern Physics C**

#### Organization of events

- 07/2025 **Dyadisc 8**, LAMFA, Amiens, <https://dyadisc8.sciencesconf.org/>
- 12/2024 **Dyadisc 7**, LAMFA, Amiens, <https://dyadisc7.sciencesconf.org/>

### Teaching, supervision and scientific communication

#### Teacher

- 2023 - 1 **Algèbre linéaire, formes normales et applications**, *Préparation à l'agrégation externe de Mathématiques d'Orsay et ENS Paris-Saclay, Option C : algèbre et calcul formel*, 6h

#### Teaching assistant

- 2026 - 1 **Probabilités et Statistique**, *UFR des sciences - Université de Picardie Jules Verne*, TD, L1, 18h
- 2023 - 2 **Projet "Installation d'un poste pour le développement"**, *IUT d'Orsay*, TP, L1, 16h
- Intro. aux systèmes d'exploitation et à leur fonctionnement**, *IUT d'Orsay*, TP, L1, 16h
- Intro. à l'architecture des ordinateurs**, *IUT d'Orsay*, TP, L1, 16h
- Algorithmique**, *Polytech Paris-Saclay*, TD et TP, L2, 32h
- 2022 - 2 **Tris et complexité**, *Préparation à l'agrégation externe de Mathématiques d'Orsay et ENS Paris-Saclay, Option C : algèbre et calcul formel*, TP, 6h
- Mathématiques 1**, *Polytech Paris-Saclay*, TD, L1, 32h
- Programmation Impérative**, *UFR des sciences - Université Paris-Saclay*, TP, L1, 24h
- 2022 - 1 **Sécurité et sûreté**, *UFR des sciences - Université Paris-Saclay*, TD, L3, 24h
- 2021 - 2 **Programmation Impérative**, *UFR des sciences - Université Paris-Saclay*, TD et TP, L1, 42h
- 2020 - 1 **Análisis Funcional**, *Universidad de Chile*, Master 1, 32h
- 2019 - 1 **Variable Compleja y Funciones Especiales**, *Universidad de Chile*, L3, 32h
- Calculabilidad y Complejidad Computacional**, *Universidad de Chile*, Master 1, 32h
- 2017 - 2 **Elementos del Álgebra**, *Universidad de Chile*, L3, 32h
- 2017 - 1 **Cálculo en Varias Variables**, *Universidad de Chile*, L2, 32h
- 2015 - 1 **Álgebra Lineal**, *Universidad de Chile*, L1, 32h

#### Supervision

2024 **Raphaël Evrard**, *stage de L3*, co-supervised with Nathalie Aubrun,  
Subject : Bi-infinite geodesics on the Heisenberg and Baumslag-Solitar groups

### Scientific Communication

11/2024 **Journée Régionale de l'APMEP, Picardie**, *Les machines de Turing et les limites du calcul*

12/2023 **Semaine de la recherche de la GS ISN**, *Tuiles de Wang et apériodicité*,  
with Nathalie Aubrun et Pierre Béaur

### Awards, grants and qualifications

2025 **Qualification MCF**, *Sections 25 and 27 of the CNU*

2021 **PhD grant**, *École Doctorale STIC*, Université Paris-Saclay

2020 **Master 2 grant**, *Institut Archimède*, Aix-Marseille Université

2019 **Romberg Grant for candidates selected to the 7th Heidelberg Laurate Forum**, *Heidelberg University*

2019 **CONYCIT Master grant**, *Comisión Nacional de Investigación Científica y Tecnológica*, Chile

2015–2018 **Outstanding student**, *Escuela de Ingeniería y Ciencias*, Universidad de Chile, Awarded to students who have achieved outstanding results in all their courses.

2014 **Andrés Bello grant**, *Universidad de Chile*, Distinction for excellent score in national selection test

2012 **Bronze Medal**, *Olimpiada Iberoamericana de Física*

### Miscellaneous

Languages Spanish (native), English (fluent), French (fluent).

Programming Unix, Python,  $\text{\LaTeX}$ , Sage, C++

Hobbies Birdwatching, running, history, photography and guitar