

# Felipe Arbulú

## Research interests

- Dynamical Systems
- Ergodic Theory

## Academic background

- 2024 - 2025 **Université de Picardie Jules Verne, LAMFA**, Amiens, France.  
Attaché temporaire d'enseignement et de recherche (A.T.E.R.)
- 2020 - 2024 **Université de Picardie Jules Verne, LAMFA**, Amiens, France.  
Ph.D in Mathematics.  
Thesis: Spectral analysis of finite topological rank  $\mathcal{S}$ -adic subshifts  
Advisor: Fabien Durand
- 2019 - 2020 **Université Paris-Saclay, Département de Mathématiques d'Orsay**, Orsay, France.  
Master 2 Mathématique et applications. Analyse, Arithmétique, Géométrie.  
Thesis: Periodicity and ergodicity in the trihexagonal tiling  
Advisor: Samuel Lelièvre
- 2012 - 2018 **Universidad de Chile, Facultad de Ciencias Físicas y Matemáticas**, Santiago, Chile.  
Double degree. Master of Science in Engineering, Mention in Applied Mathematics and Mathematical Engineering  
Thesis: Contributions to the study of eigenvalues and weak-mixing for interval exchange transformations and affine geometric systems  
Advisor: Alejandro Maass
- 2012 - 2015 **Universidad de Chile, Facultad de Ciencias Físicas y Matemáticas**, Santiago, Chile.  
B. Sc. in Mathematical Engineering

## Awards, honors and scholarships

- 2007 - 2011 Chile National Mathematical Olympiad. Chile. Medalist  
2010 Cono Sur Mathematical Olympiad. Brazil. Participation  
2010 Iberoamerican Mathematical Olympiad. Paraguay. Honorable Mention  
2011 International Mathematical Olympiad. Netherlands. Participation
- 2016 - 2017 Beca Bicentenario (undergraduate scholarship), Ministry of Education. Chile
- 2013, 2016, 2017 Outstanding Student, Facultad de Ciencias Físicas y Matemáticas, Universidad de Chile
- 2016, 2017 Summer Scholarship. Instituto de Matemática Pura e Aplicada. Brazil
- 2017 Beca de Excelencia CMM (graduate scholarship), Center for Mathematical Modeling. Chile
- 2019 Master 2 scholarship, La Fondation Mathématique Jacques Hadamard. France
- 2020 Becas Chile (scholarship for Ph.D. studies abroad), Chilean Government

## Publications

- Arbulú, Felipe and Fabien Durand (2023). "Dynamical properties of minimal Ferenczi subshifts". In: *Ergodic Theory Dynam. Systems* 43, pp. 3923–3970. DOI: 10.1017/etds.2023.7.
- Arbulú, Felipe, Fabien Durand, and Bastián Espinoza (2024). "The Jacobs–Keane theorem from the  $\mathcal{S}$ -adic viewpoint". In: *Discrete Contin. Dyn. Syst.* 44.10, pp. 3077–3108. DOI: 10.3934/dcds.2024052.

## Talks

- 2021 Séminaire Dynamique et Probabilités. Université de Picardie Jules Verne. Amiens. France

- 2021 SDA2: Systèmes Dynamiques, Automates et Algorithmes. Université de Caen Normandie. Caen. France
- 2022 Dyadisc 5.  $\mathcal{S}$ -adicity. Université de Liège. Liège. Belgium
- 2023 Séminaire Ernest. Institut de Mathématiques de Marseille. Marseille. France
- 2023 Séminaire equipe ADA. Université Littoral Côte d'Opale. Calais. France
- 2023 Séminaire de Mathématiques discrètes. Université de Liège. Liège. Belgium
- 2023 Dyadisc 6. Dynamics on the Cantor set and applications. Université de Picardie Jules Verne. Amiens. France
- 2024 Dynamics on zero-dimensional spaces: new connections. Lorentz Center. Leiden. The Netherlands
- 2024 Workshop ANR IZES. Île de Porquerolles. France

### Posters

- 2021 Dyadisc4. Dynamique et Analyse Discrète: problèmes ouverts en dynamique de faible complexité. Université de Picardie Jules Verne. Amiens. France

## Conferences attended

- 2016 Tercer Encuentro de Teoría de Números. Pontificia Universidad Católica de Chile. Santiago. Chile
- 2016 School of Information and Randomness 2016. Universidad de Chile. Santiago. Chile
- 2016 SUMA 2016. Organized by SOMACHI and UMA. Valparaíso. Chile
- 2017 LXIII Colloquium. USACH. Santiago. Chile
- 2018 Escuela Doctoral en Probabilidades y Sistemas Dinámicos. Pontificia Universidad Católica de Chile. Santiago. Chile
- 2018 International Conference on Computability, Complexity and Randomness. Universidad Andrés Bello. Santiago. Chile
- 2021 Algebraic and Combinatorial Invariants of Subshifts and Tilings. Centre Internationale de Rencontres Mathématiques. Marseille. France
- 2021 Dynamics and Geometry. Online Summer School. Clay Mathematics Institute, Heilbronn Institute for Mathematical Research, University of Bristol. Bristol. UK
- 2022 Billiards. Winter School. GDR CNRS Platon. Autrans. France
- 2022 SDA2 2022. Université de Liège. Liège. Belgium
- 2023 SDA2 2023. Institut de Mathématiques de Toulouse. Toulouse. France
- 2024 Dynamics on zero-dimensional spaces: new connections. Lorentz Center. Leiden. The Netherlands
- 2024 Workshop ANR IZES. Île de Porquerolles. France

## Teaching

- 2017, 2018 **Teaching Assistant**, *Departamento de Ingeniería Matemática*, Universidad de Chile.
  - Differential and Riemannian Geometry.
- 2022 **Vacataire, Chargé de Travaux Dirigés (TD)**, Université de Picardie Jules Verne.
  - Méthodes et Techniques de Calcul
- 2024 - 2025 **A.T.E.R., Chargé de Travaux Dirigés (TD)**, Université de Picardie Jules Verne.
  - Méthodes et Techniques de Calcul
  - Probabilités et statistique
  - Analyse réelle fondamentale
  - Analyse réelle appliquée
  - Modélisation aléatoire
  - Systèmes dynamiques

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## Other activities

Summer 2015	Engineering internship. Centro de Investigación Avanzada en Educación
Fall 2017	Engineering internship. Universidad Adolfo Ibáñez
Fall 2017	Engineering internship. Centro de Investigación Avanzada en Educación
2016, 2020, 2021, 2022, 2023	Trainer of the Chilean team for international mathematical competitions

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## Other

### Languages

Spanish Native

English

- Reading. High
- Listening. Intermediate
- Speaking. Intermediate
- Writing. High

French Intermediate

Portuguese Basic

### Programming

Programming Languages  $\LaTeX$ , Matlab, Python, SageMath