Corentin Pierre Edgar Fierobe

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Date of birth: 23 March 1993 **Nationality:** French

Current and Previous Positions

Postdoctoral Researcher — *University of Rome "Tor Vergata"* 01/09/2024 – ongoing
Rome, Italy.
Mentorship of Prof. Alfonso Sorrentino

Postdoctoral Researcher — *Institute of Science and Technology Austria (ISTA)* 01/09/2021 – 31/08/2024
Klosterneuburg/Vienna, Austria.
Mentorship of Prof. Vadim Kaloshin

Qualifications

Maître de Conférences qualification (2023–2027)
French Habilitation for Associate Professor positions, Section 25.

Education

Ph.D. in Mathematics — *École Normale Supérieure de Lyon (ÉNS Lyon)* 01/09/2018 – 15/05/2021
Lyon, France

- **Supervisor:** Prof. Alexey Glutsyuk
- **Thesis Title:** Projective and Complex Billiards, Periodic Orbits and Pfaffian Systems
- **Manuscript:** https://theses.fr/2021LYSEN014
- **Funding:** Contrat Doctoral Spécifique Normalien (CDSN)
- **Defense date:** 15/05/2021

M.S. in Mathematics — *École Normale Supérieure de Lyon* 01/09/2017 – 31/08/2018
Lyon, France

- **Specialization:** Geometry and Dynamical Systems

Agrégation in Mathematics — *National Competitive Examination* 01/09/2016 – 31/08/2017
France

- National qualification for higher degree teaching.
- **Rank:** 9th.

Publications

Published

1. C. Fierobe, Le théorème de Lindemann-Weierstrass, *Journal de mathématiques des élèves de l'É.N.S. de Lyon*, 2015.
2. C. Fierobe, On the circumcenters of triangular orbits in elliptic billiards, *Journal of Dynamical and Control Systems*, 2021. DOI: 10.1007/s10883-021-09537-2
3. C. Fierobe, Complex caustics of the elliptic billiard, *Arnold Mathematical Journal*, 2021. DOI: 10.1007/s40598-020-00152-w
4. M. Bialy, C. Fierobe, A. Glutsyuk, M. Levi, A. Plakhov, S. Tabachnikov, Open Problems on Billiards and Geometric Optics, *Arnold Mathematical Journal*, 2022. DOI: 10.1007/s40598-022-00198-y
5. C. Fierobe, Examples of reflective projective billiards, *Discrete and Continuous Dynamical Systems A*, 2024. DOI: 10.3934/dcds.2024059
6. C. Fierobe, V. Kaloshin, A. Sorrentino, *Lecture Notes on Birkhoff Billiards: Dynamics, Integrability and Spectral Rigidity*, Chapter in: Modern Aspects of Dynamical Systems, Springer, 2024. DOI: 10.1007/978-3-031-62014-0_1

7. C. Fierobe, On projective billiards with open subsets of triangular orbits, *Israel Journal of Mathematics*, 2024. DOI: 10.1007/s11856-024-2712-z
8. L. Baracco, O. Bernardi, C. Fierobe, Starting the study of outer length billiards, *Pacific Journal of Mathematics*, 2025. DOI: 10.2140/pjm.2025.339.201
9. C. Fierobe, A. Sorrentino, A. Vig, Deformational spectral rigidity of axially symmetric symplectic billiards, *Nonlinearity*, 2025. DOI: 10.1088/1361-6544/ae0c4f
10. C. Fierobe, Only quadrics have pseudo-caustics, on caustics of Riemannian, pseudo-Euclidean and projective billiards in higher dimensions, *Mathematische Zeitschrift*, 2026. DOI: 10.1007/s00209-026-03939-3
11. C. Fierobe, A. Sorrentino, On the existence of periodic invariant curves for analytic families of twist maps and billiards, *Revista Matemática Iberoamericana*, 2026. DOI: 10.4171/RMI/1595
12. C. Fierobe, Lazutkin coordinates and the conjugation problem for billiard maps, accepted for publication in *Czechoslovak Mathematical Journal*, 2026. arXiv:2503.19550.
13. C. Fierobe, V. Kaloshin, A. Sorrentino, A billiard table close to an ellipse is deformationally spectrally rigid among dihedrally symmetric domains, accepted for publication in *Geometric And Functional Analysis*, 2026. arXiv:2511.20062
14. C. Fierobe, D. Tsodikovitch, Rigidity of the Suris potentials in the Frenkel-Kontorova model, accepted for publication in *Nonlinearity*, 2026. arXiv:2601.15058

Submitted Preprints

15. C. Fierobe, *Spectral rigidity among ellipses, Bialy's conjecture and local extrema of Mather's beta function*, arXiv:2603.09439, 2026.
16. C. Fierobe, V. Kaloshin, F. Trujillo, *Rigidity of Mather's β-function on a KAM set for analytic billiards-like maps and unique quasi-analytic continuation*, arXiv:2608.15401, 2026.

Books

1. *Annales corrigées des Problèmes posés aux Concours 2018*, H&K Editions.
2. *Annales corrigées des Problèmes posés aux Concours 2019*, H&K Editions.
3. *Annales corrigées des Problèmes posés aux Concours 2023*, H&K Editions.

Description: Solved exam papers for entrance examinations of France's Écoles Normales Supérieures, Polytechnique, Mines-Ponts, Centrale-Supélec, etc. https://www.h-k.fr/adc

Teaching Experience

Co-instructor — *ISTA* Fall 2023
Vienna, Austria
Description: *Conservative Dynamical Systems.* Course for PhD students, with Vadim Kaloshin.
Duration: 10 sessions of 2 hours.

Teaching Assistant — *École Normale Supérieure de Lyon* Fall 2021
Lyon, France
Description: *Complex Analysis*
Duration: 12 sessions of 2 hours.

Instructor — *École Normale Supérieure de Lyon* Spring 2021
Lyon, France
Description: Preparation for the agrégation oral examinations
Duration: 12 sessions of 2 hours).

Instructor — *École Normale Supérieure de Lyon* Spring 2018, 2019, 2020
Lyon, France
Description: *Differential Calculus*
Duration: 12 lectures of 2 hours each year.

Institutional Tasks & Scientific Service

Institutional Tasks

- **Co-organizer**, Seminar of Dynamical Systems, ISTA, Vienna (15/01/2022 – 31/06/2024).

- **Co-organizer**, BudWieSer Seminar (Joint Seminar between ISTA, University of Vienna, and Rényi Institute Budapest) (15/01/2022 – 31/06/2024).
- **Co-organizer**, PhD Students Seminar, É.N.S. de Lyon (01/09/2019 – 31/06/2021).

Scientific Expert Activities

- **Referee** for mathematical journals including: *Nonlinearity*, *Communications in Mathematical Physics*, *Discrete and Continuous Dynamical Systems*, and *Arnold Mathematical Journal*.

Conferences, Talks, and Presentations

Mini-course

- **Techniques of Analytic Geometry in Projective Billiards** February 2020
  High School of Economics, Nizhny Novgorod, Russia

Invited Conferences Talks

- **Workshop "Stability in Hamiltonian Dynamics III"** January 2026
  University of Padua, Padua, France
- **Workshop "Stability in Hamiltonian Dynamics II"** January 2025
  University of Turin, Turin, France
- **Workshop on Billiard Rigidity** November 2024
  Rényi Institute, Budapest, Hungary
- **Journées Dynamiques** October 2024
  Université Paris-Cité, Paris, France
- **Conference on Billiard Dynamics** November 2023
  É.N.S. de Lyon, Lyon, France (by train)
- **"Young Mathematicians" Conference** October 2021
  CIRM, Marseille, France (by train)
- **"Dynamics in Siberia" Conference** March 2020
  Sobolev Institute of Mathematics, Novosibirsk, Russia (by train)
- **Spring Mathematics Conference** February 2020
  Higher School of Economics, Nizhny Novgorod, Russia (by train)
- **International Conference "Real and Complex Dynamical Systems"** November 2018
  On the occasion of the 75th birthday of Prof. Yulij Ilyashenko, Higher School of Economics, Moscow, Russia

Invited Seminars Talks

- **BOM Billiards Seminar** February 2026
  Online seminar: https://sites.google.com/view/bombilliards/
- **Seminar** December 2025
  Institute of Mathematics of the Polish Academy of Sciences, Gdańsk, Poland
- **Seminar** December 2025
  Gdańsk University of Technology, Gdańsk, Poland
- **Seminar** December 2025
  IMPAN, Warsaw, Poland
  Seminar's video: http://www.youtube.com/watch?v=kweg5Yz98SE
- **"Geometry, Groups and Dynamics" Seminar** November 2025
  É.N.S. de Lyon, Lyon, France
- **Seminar** February 2025
  University of Padua, Padua, Italy
- **Dynamics Seminar** September 2024
  University of Maryland, Maryland, United States
- **Seminar** April 2024
  University of Barcelona, Barcelona, Spain
- **DynamIST Seminar** October 2023
  ISTA, Klosterneuburg-Vienna, Austria
- **BudWieSer Seminar** January 2023
  Rényi Institute of Mathematics, Budapest, Hungary (by train)

- **DynamIST Seminar** March 2022
  ISTA, Klosterneuburg, Austria
- **Differential Geometry Seminar** February 2022
  TU Wien, Vienna, Austria (online)
- **"Geometry, Groups and Dynamics" Seminar** November 2020
  É.N.S. de Lyon, Lyon, France (online)
- **Seminar of Prof. Dmitry Treschev** March 2020
  Steklov Mathematical Institute, Moscow, Russia (by train)
- **Several Complex Variables Seminar of Prof. Vitushkin** March 2020
  Lomonosov Moscow State University, Moscow, Russia (by train)
- **Dynamical Systems Seminar of Prof. Ilyashenko** April 2019
  Higher School of Economics, Moscow, Russia (by train)

Research Visits

- **Research visit to the Department of Mathematics** January 2027 (planned)
  University of Padua, Padua, Italy
- **Research visit to the Department of Mathematics** December 2025
  Gdańsk University of Technology, Gdańsk, Poland
- **Research visit to the Department of Mathematics** February 2025
  University of Padua, Padua, Italy
- **Workshop on rigidity in billiard dynamics** November 2024
  Rényi Institute of Mathematics, Budapest, Hungary
- **Research visit to the University of Maryland** September 2024
  Maryland, United States
- **Research visit to UB-UPC** April 2024
  Universitat de Barcelona – Universitat Politècnica de Catalunya, Barcelona, Spain (by train)
- **Program and workshop** October–November 2023
  Simons Center, Stony Brook, United States

Skills

- **Programming:** C/C++, CoCalc, HTML/CSS, JavaScript & p5.js, PHP, SQL.
- **Languages:** French (Native), Czech (B1-B2), English (C1), German (C1), Italian (B2), Russian (A2).