



# Sylvain Gaulhiac

*Postdoctoral Fellow in IMPAN, Warsaw*

## Positions

- 2023–Present **Postdoctoral Fellowship**, *IMPAN*, Warsaw, Poland, in the research group KAPIBARA led by Piotr Achinger.
- 2021–2022 **Postdoctoral Fellowship**, *University of Alberta*, Edmonton, Canada.
- 2019–2020 **ATER (Attaché Temporaire d'Enseignement et de Recherche)**, *Sorbonne Université*, Paris.

## Education

- 2016–2020 **Ph.D under the supervision of Antoine Ducros**, *Sorbonne Université*, Paris.  
Title : Comportements anabéliens des courbes de Berkovich sous les perspectives tempérées
- 2015 **Agrégation Externe de Mathématiques**, Rank : 15.
- 2012–2016 **École Normale Supérieure de Rennes and Université de Rennes 1**.
  - 2014-2015 : Master 2 in Algebra and Geometry (Mention Bien)
  - 2014-2015 : Preparation to the Agrégation Externe de Mathématiques, Master 2 Mathematics and Teaching (Mention Très bien)
  - 2013-2014 : Master 1 in Mathematics
  - 2012-2013 : Licence 3 in Mathematics (Mention Très bien)
- 2012 **Accepted in École Normale Supérieure de Rennes (ENS)**.
- 2009-2012 **Classes Préparatoires MPSI/MP\***, *Lycée Joffre*, Montpellier, France.

## Mathematical interests

- Algebraic/Arithmetic geometry, Number theory
- Anabelian geometry
- Analytic non-archimedean geometry (Berkovich/adic geometry)
- All kinds of fundamental groups, with an emphasis on the tempered fundamental group
- Condensed mathematics

## Research papers

*IMPAN – Warsaw, Poland*

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- 1 - *Reconstruction anabélienne du squelette des courbes analytiques*, accepted for publication in *Annales de l'Institut Fourier*, arXiv:1904.03126
- 2 - *Towards tempered anabelian behaviour of Berkovich annuli*, accepted for publication in *Bulletin de la Société Mathématique de France*, arXiv:2101.06648
- 3 - *Comparison between admissible and de Jong coverings of rigid analytic spaces in mixed characteristic*, submitted in *Manuscripta Mathematica*, arXiv:2201.08065

## Research talks

- March 2023 **IMPANGA Seminar**, *IMPAN*, Warsaw.  
Title : Tempered anabelian geometry in Berkovich spaces.
- July 2022 **Derived Categories, Arithmetic, and Reconstruction in Algebraic Geometry**, *BIRS*, Banff, Canada.  
Title : Towards tempered anabelian recovery of lengths in Berkovich geometry.
- January 2022 **Hausel Working Seminar**, *IST Austria*, Klosterneuburg.  
Title : Tempered anabelian geometry in analytic Berkovich spaces.
- October 2021 **Arithmetic Geometry Seminar**, *University of Alberta*, Edmonton.  
Title : Do Berkovich curves have anabelian behaviours?
- March 2020 **Number Theory Seminar**, *Sorbonne Université*, Paris.  
Title : Les courbes de Berkovich ont-elles un comportement anabélien ?
- October 2019 **Number Theory Seminar**, *Université de Caen Normandie*, Caen.  
Title : Anabelian Geometry on Berkovich curves.
- June 2019 **GAeL XXVII, Géométrie Algébrique en Liberté**, *IMAR*, Bucharest.  
Title : Anabelian behaviours of Berkovich curves.
- April 2019 **Seminar Ph.D-Master Students**, *Sorbonne Université*, Paris.  
Title : Anabelian Geometry : from hyperbolic curves to Berkovich curves.
- March 2019 **Ph.D Seminar**, *Université de Rennes 1*, Rennes.  
Title : Anabelian geometry in Berkovich spaces.
- April 2018 **Ph.D Seminar**, *Université de Caen Normandie*, Caen.  
Title : Berkovich spaces, or how to define analytic spaces over non-archimedean fields.
- June 2017 **Seminar**, *Chebyshev Institute*, Saint-Petersburg.  
Title : Introduction to Berkovich Spaces.

## Predoctoral Research experience

- 2015 **Master 2 thesis under the supervision of Pierre Lochak**, *Université Pierre et Marie Curie*, Paris.  
Title : Autour de la connexion KZB universelle
- Summer 2014 **Master 1 thesis under the supervision of Zinovy Reichstein**, *University of British Columbia*, Vancouver.  
Title : Simplifying polynomials in one variable using quadratic form theory (Hermite-Joubert problem in quadratically closed field extensions)

Spring 2013 **L3 thesis under the supervision of Mathieu Florence**, *Université Pierre et Marie Curie*, Paris.  
Title : Autour du problème de Noether pour les groupes alternés

## Organisation of Seminars

- 2021 Co-organisation with Adam Topaz of the **Condensed Mathematics Seminar**, *University of Alberta*, Edmonton.
- 2018–2019 In charge of the monthly seminar **RÉGA (Réseau d'Etudiants en Géométrie Algébrique)**, *Institut Henri Poincaré*, Paris.

## Teaching experience

- 2021 **Calculus 1, Math100**, Instructor, *University of Alberta*
- 2019–2020 **Differential equations (level L2)**, Teaching Assistant, *Sorbonne Université*
- 2019–2020 **Algebra (level L3)**, Teaching Assistant, *Sorbonne Université*
- 2019–2020 **Arithmetic and algebra (level L2)**, Teaching Assistant, *Sorbonne Université*
- 2017–2018 **Euclidean and Hermitian vector spaces, affine isometries (level L2)**, Teaching Assistant, *Sorbonne Université*
- 2017–2018 **Isometry groups and symmetrical groups (level L2)**, Teaching Assistant, *Sorbonne Université*
- 2017–2018 **Arithmetic and algebra (level L2)**, Teaching Assistant, *Sorbonne Université*
- 2016–2017 **Linear algebra 2, Euclidean vector spaces, affine isometries (level L2)**, Teaching Assistant, *Sorbonne Université*
- 2016–2017 **Analysis and algebra for science (level L1)**, Teaching Assistant, *Sorbonne Université*
- 2018–2020 Courses given to students preparing the french **Agrégation Externe de Mathématiques** (highest teaching competitive exam).
- 2015–2016 Interrogations (khôlles) given in preparatory classes MPSI in Lycée Louis-le-Grand (Paris).

## Attended conferences and workshops

- September 2022 **Around p-adic cohomologies**, *Università di Padova*, Padova.
- July 2022 **Derived Categories, Arithmetic, and Reconstruction in Algebraic Geometry**, *BIRS*, Banff.
- March 2022 **Cohomology of Varieties**, *IMPAN*, Warsaw.
- November 2021 **BIRS Alberta Number Theory Days XIII**, *BIRS*, Banff, (online).
- November 2019 **Géométrie Algébrique et Géométrie Complexe (GAGC)**, *CIRM*, Marseille.
- June 2019 **GAeL XXVII, Géométrie Algébrique en Liberté**, *IMAR*, Bucharest, Romania.

- May 2019 **School : Curves and Groups in Families**, *Université Rennes 1*, Rennes.
- December 2018 **Géométrie Algébrique et Géométrie Complexe (GAGC)**, *CIRM*, Marseille.
- September 2018 **CATS 5, Categories and Stacks in Geometry, Topology and Algebra**, Lisbon, Portugal.
- August 2018 **International Congress of Mathematics**, Rio de Janeiro, Brazil.
- July 2018 **Berkovich Spaces 30 years**, *IHP*, Paris.
- April 2018 **Modern and Classical Aspects on Algebraic Surfaces**, *Pedagogical University of Krakow*, Poland.
- April 2018 **Crystals and Geometry in characteristic  $p$** , *TU Munich*, Germany.
- September 2017 **Instruments of Algebraic Geometry**, *IMAR*, Bucharest, Romania.
- July 2017 **Berkovich Spaces, Tropical Geometry and Model Theory**, *Universidad de Los Andes*, Bogota, Colombia.
- March 2017 **Géométrie analytique et équations différentielles  $p$ -adiques**, *CIRM*, Marseille.
- March 2017 **Arizona Winter School: Perfectoid Spaces**, *University of Arizona*, Tuscon.

## Languages

- French    Mothertongue
- English    Fluent
- Spanish    Intermediate
- Russian    Moderate (*CLES 1 obtained in 2017*)

## Interests

### Music

Out of mathematics I am a pianist as well as a musical critic in classical music for Bachtrack, specialized in piano and chamber music, but also covering orchestra. I wrote numerous reviews of concerts, as well as some interviews of musicians or program of concerts. I was several times part of the Press Jury for the International Competition for Outstanding Piano Amateurs.

### Other

- Litterature
- Photography
- Hiking
- Cooking
- Travelling
- Dance (Salsa, Tango, Bachata...)