

## Employment

- Jan. 2021 – **Postdoctoral fellow**, *Charles University, Faculty of Mathematics and Physics, Department of Mathematical Analysis*, Prague, Czech Republic  
...  
Supervisor: Miroslav Zelený
- Jan. 2020 – **Postdoctoral fellow**, *University of Vienna, Institute of Mathematics, Kurt Gödel Research Center*, Vienna, Austria  
Dec. 2020  
Employed on the Grant P29999 of the Austrian Science Foundation (FWF): “Analytic structures”  
Supervisor: Benjamin Miller
- Sep. – Dec. 2019 **Postdoctoral fellow**, *Charles University, Faculty of Arts, Department of Logic*, Prague, Czech Republic  
Employed on the project 17-33849L: “Filters, ultrafilters and forcing” jointly founded by the FWF (Austrian Science Foundation) and the GAČR (Czech Science Foundation)  
Supervisor: Jonathan Verner
- 2018–2019 **ATER (Temporary assistant professorship)**, *Université Paris 7 – Denis Diderot, IMJ-PRG, Mathematical Logic Team*, Paris, France
- 2015–2018 **Moniteur (Teaching assistant)**, *École normale supérieure (ENS), Department of Mathematics and Applications, Algebra and Geometry Team*, Paris, France
- 2015–2018 **Doctorant contractuel (Ph.D. grant)**, *Université Paris 7 – Denis Diderot, IMJ-PRG, Mathematical Logic Team*, Paris, France

## Education

- 2015–2018 **Ph.D. in mathematics**, *Université Paris 7 – Denis Diderot, IMJ-PRG, Mathematical Logic Team*, Paris, France  
Supervisor: Stevo Todorčević  
Title: *Ramsey theory without pigeonhole principle and applications to the proof of Banach-space dichotomies*  
Topics: Ramsey theory, Banach-space geometry, Set theory  
Defended on June 28, 2018
- 2015 **Agrégation externe de mathématiques**  
National competitive examination in the French public education system; ranked 24th
- 2013–2014 **Master 2 (Masters) in mathematics**, *Université Paris 7 – Denis Diderot*, Paris, France, Mention Très Bien (“Very Good”)  
Master 2 “LMFI” (“Mathematical Logic and Foundations of Computer Sciences”)  
Thesis: *The proof of Gowers’ first dichotomy and its application to the homogeneous space problem*  
Supervisor: Stevo Todorčević
- 2012–2013 **Master 1 in mathematics**, *Université Paris-Sud / École normale supérieure (ENS)*, Paris, France, Mention Très Bien (“Very Good”)
- 2011–2012 **Licence 3 (Bachelor) in mathematics**, *Université Paris-Sud / École normale supérieure (ENS)*, Paris, France, Mention Très Bien (“Very Good”)  
Thesis: *Whitehead’s problem is undecidable in ZFC*  
Joint work with Guillaume Geoffroy  
Supervisor: Pierre Simon
- 2011–2015 **Student at the École normale supérieure (ENS)**, Paris, France  
Admission by competitive examination, ranked 6th

---

## Publications

### Published papers

- 2020 **Spectral-free methods in the theory of hereditarily indecomposable Banach spaces**, *Bull. Belgian Math. Soc. Simon Stevin*, 27 :775–787, 2020
- 2020 **Ramsey theory without pigeonhole principle and the adversarial Ramsey principle**, *Trans. Amer. Math. Soc.*, 373 :5025–5056, 2020

### Accepted papers

- To appear **Local Banach-space dichotomies and ergodic spaces**, with Wilson Cuellar-Carrera and Valentin Ferenczi, to appear in *J. Europ. Math. Soc.*, arXiv:2005.06458
- To appear **Connected components of the general linear group of a real hereditarily indecomposable Banach space**, to appear in *Studia Math.*, arXiv:2009.04687

### Preprints

- Submitted **Continuity of coordinate functionals of filter bases in Banach spaces**, with Tomasz Kania and Jarosław Swaczyna, arXiv:2203.15123
- Submitted **The Feldman-Moore, Glimm-Effros, and Lusin-Novikov theorems over quotients**, with Benjamin Miller, arXiv:2105.05374
- Submitted **A dichotomy for countable unions of smooth Borel equivalence relations**, with Benjamin Miller, arXiv:2105.05362

### Ph.D. thesis

- 2018 **Ramsey theory without pigeonhole principle and applications to the proof of Banach-space dichotomies**

---

## Participation in projects and programmes

### Scientific projects involvement

- 2022–2024 **HFRT project “ANACOMB (Analytic techniques in combinatorics)”**  
Three-years research grant awarded by the Hellenic Foundation for Research & Innovation (HFRI)  
Role: team member  
PI: Pandelis Dodos
- 2017 **USP-COFECUB project “Geometry of Banach spaces”**  
Four-years project funded by the University of São Paulo and the COFECUB (French committee for academic and scientific cooperation between France and Brasil)  
Role: team member

### Semester programmes participation

- October 2015 **Mathematical, Foundational and Computational Aspects of the Higher Infinite**, *Isaac Newton Institute for Mathematical Sciences*, Cambridge, UK  
10-days invited stay  
Invited lecture: *Ramsey determinacy of adversarial Gowers' games*

## Participation in international conferences

### Invited lectures

- October 2021 **Workshop on Generic Structures**, *Institute of Mathematics of the Czech Academy of Sciences*, Prague, Czech Republic  
Weak Fraïssé classes and  $\aleph_0$ -categoricity
- June 2021 **2021 North-American annual meeting of the Association for Symbolic Logic, special session in set theory**, *Online*  
A dichotomy for countable unions of smooth Borel equivalence relations (joint work with Benjamin Miller)
- December 2020 **2020 Winter meeting of the Canadian Mathematical Society, Session “Logic and Applications”**, *Online*  
Intersection-smooth equivalence relations (joint work with Benjamin Miller)
- October 2020 **“Virginia Operator Theory and Complex Analysis Meeting” (VOTCAM)**, *Online*  
Local Banach-space dichotomies (joint work with Wilson Cuellar Carrera and Valentin Ferenczi)
- November 2018 **Workshop “Unifying Themes in Ramsey Theory”**, *Banff International Research Station for Mathematical Innovation and Discovery*, Banff, Canada  
An abstract formalism for strategical Ramsey theory
- September 2016 **Workshop “Set Theory and its Applications in Topology”**, *Casa Matemática Oaxaca*, Oaxaca, Mexico  
Ramsey theory with and without pigeonhole principle

### Contributed talks

- January 2022 **Winter School in Abstract Analysis, section Set Theory & Topology**, Hejnice, Czech Republic  
A dichotomy for countable unions of smooth Borel equivalence relations
- January 2022 **49<sup>th</sup> Winter School in Abstract Analysis**, Sňěžné, Czech Republic  
A dichotomy for countable unions of smooth Borel equivalence relations
- January 2020 **48<sup>th</sup> Winter School in Abstract Analysis**, Svratka, Czech Republic  
Isometrically homogeneous Banach spaces
- December 2019 **Colloquiumfest**, *Institute of Mathematics of the Czech Academy of Sciences*, Prague, Czech Republic  
Locally bijective homomorphisms of regular graphs (joint work with Jan Hubička)
- June 2019 **Banach spaces and optimization: Conference on the occasion of Robert Deville’s 60<sup>th</sup> birthday**, Métabief, France  
Hilbert-avoiding dichotomies and ergodicity (joint work with Wilson Cuellar Carrera and Valentin Ferenczi)
- August 2018 **Second Brazilian workshop in geometry of Banach spaces**, Ubatuba, Brazil  
Hilbert-avoiding dichotomies and ergodicity (joint work with Wilson Cuellar Carrera and Valentin Ferenczi)
- January 2018 **Winter School in Abstract Analysis, section Set Theory & Topology**, Hejnice, Czech Republic  
Approximate Gowers spaces
- January 2018 **46<sup>th</sup> Winter School in Abstract Analysis**, Svratka, Czech Republic  
A dichotomy for Banach spaces non-isomorphic to  $\ell_2$  (joint work with Wilson Cuellar Carrera and Valentin Ferenczi)
- December 2015 **Meeting “Descriptive Set Theory in Paris”**, *Université Pierre-et-Marie-Curie*, Paris, France  
Ramsey determinacy of adversarial Gowers’ games

---

## Research stays and visits

- Two days, **Institut de Mathématiques de Jussieu-Paris Rive Gauche**, Paris, France  
March 2022 Two talks delivered at the descriptive set theory seminar
- Three days, **Jagiellonian University**, Kraków, Poland  
March 2022 Collaboration with Kevin Beanland and Tomasz Kania  
Talk delivered at the seminar on geometry of Banach spaces
- One day, **Institut Camille Jordan**, Lyon, France  
January 2022 Talk delivered at the mathematical logic seminar
- Two days, **Laboratoire Paul Painlevé**, Lille, France  
January 2022 Collaboration with Sophie Grivaux and Étienne Matheron  
Talk delivered at the functional analysis seminar
- One week, **Institute of Mathematics of the Czech Academy of Sciences**, Prague, Czech Republic  
July 2020 Collaboration with Wiesław Kubiś' team
- One week, **Institut de Mathématiques de Bordeaux**, Bordeaux, France  
Oct. 2019 Collaboration with Robert Deville and Elizabeth Strouse  
Talk delivered at the analysis seminar
- One day, Feb. **Laboratoire de Mathématiques de Besançon**, Besançon, France  
2019 Talk delivered at the functional analysis seminar
- One week, **University of Calgary, Centre for Computational and Discrete Geometry**, Calgary,  
Nov. 2018 Canada  
Collaboration with Claude Laflamme and Mike Pawliuk
- One week, **University of Toronto**, Toronto, Canada  
Nov. 2018 Collaboration with Stevo Todorčević and Jamal Kawach  
Talk delivered at the set theory seminar of the Fields Institute
- One day, Oct. **Laboratoire Paul Painlevé**, Lille, France  
2018 Talk delivered at the functional analysis seminar
- One week, **University of São Paulo**, São Paulo, Brazil  
Aug. 2018 Collaboration with Valentin Ferenczi and Wilson Cuellar-Carrera
- One week, **Institute of Mathematics of the Czech Academy of Sciences**, Prague, Czech Republic  
Feb. 2018 Collaboration with Wiesław Kubiś  
One talk delivered at the Set Theory & Analysis seminar, and another at the Set theory seminar
- Three weeks, **University of São Paulo**, São Paulo, Brazil  
Aug. 2017 Collaboration with Valentin Ferenczi  
Mini-course (three talks) delivered at the Banach-space geometry seminar

---

## Reviewer work

- 2021–2022 **Review of an article for the *European Journal of Combinatorics***, in progress
- 2021 **Review of a grant proposal for the National Science Center of Poland**  
Funding scheme: PRELUDIUM-20 (grants funding one to three-years projects for researchers having no doctoral degree yet)

---

## Teaching experience

### Academic teaching

- 2018–2019 **Weekly oral tests in mathematics**, *Université Paris 7 – Denis Diderot*  
Calculus, polynomials and linear algebra  
For students in first year of mathematics, 12 hours taught
- 2018–2019 **Exercise sessions in elementary algebra and calculus**, *Université Paris 7 – Denis Diderot*  
Complex numbers, elementary calculus and basic linear algebra  
For students in first year of chemistry, 54 hours taught
- 2018–2019 **Refresher course in mathematics**, *École d'Ingénieur Denis Diderot, Université Paris 7 – Denis Diderot*  
Complex numbers, calculus and basic linear algebra  
For students in first year of engineering school (third year of higher education), 36 hours taught
- 2015–2018 **Exercise sessions in mathematical logic**, *École normale supérieure (ENS), Paris*  
Set theory, model theory, computability theory, and Gödel's incompleteness theorems  
For 3rd and 4th year students, 52 hours taught per year
- 2014–2015 **Weekly oral tests in mathematics**, *Lycée Louis-le-Grand, Paris*  
Advanced linear algebra, real analysis and a few other topics  
Students in *Classes préparatoires MP\** (high-level 2nd year students), approx. 60 hours taught

### Supervision of Bachelor students

- Spring 2018 **Adrien Abgrall and Maxime Ramzi**, *École normale supérieure (ENS), Paris*  
Thesis: *Kechris–Pestov–Todorovic's correspondence*  
Co-supervised with Todor Tsankov
- Spring 2017 **Arnaud Étève and Robin Lemaire**, *École normale supérieure (ENS), Paris*  
Thesis: *The embedding of countable linear orderings is bqo*
- Spring 2016 **Apolline Louvet and Valentin Melot**, *École normale supérieure (ENS), Paris*  
Thesis: *A Borel combinatorial proof of Silver's dichotomy about  $\Pi_1^1$  equivalence relations*

### Teaching outside the academic system

- 2014 **Teaching at the mathematics club ParisMaths**  
Mathematics club for high-level high-school students, held at the *École normale supérieure (ENS)* in Paris
- 2011–2012 **Teaching at Mathematical Olympiad camps**  
Camps aiming at training high-school students for Mathematical Olympiads

---

## Dissemination of scientific knowledge

- 2017–2018 **Hosting three young interns at the École normale supérieure (ENS)**  
French middle school students (13 or 14 years old) have to do a one-week "internship" in a company or a public service. I hosted three such students at the department of mathematics of the ENS, to make them discover research and give them an idea of what higher-level mathematics can be.
- 2014 **Leader of a team at the TFJM<sup>2</sup>**  
French Tournament of Young Mathematicians, a mathematical competition for high-school students (French version of the ITYM)
- 2013 **Animation of a stand at the Mathematical Culture and Games Fair**  
Four-days long fair holding every year in Paris  
Animation of a stand presenting percolation to elementary school pupils

---

## Awards and distinctions

- 2013 **International Mathematics Competition for University Students (IMC)**, Blagoevgrad, Bulgaria, *First Prize*
- 2012 **International Mathematics Competition for University Students (IMC)**, Blagoevgrad, Bulgaria, *First Prize*
- 2008 **Olympiades académiques de mathématiques**, *French national mathematical contest for 11th grade students*  
Ranked 1st

---

## Administrative duties

- 2015–2018 **Co-organiser of the open house in the École normale supérieure (ENS)**
- 2013–2015 **Student representative on the Administrative Advisory Board of the École normale supérieure (ENS)**

---

## Miscellaneous

- Date of birth May 5, 1992
- Nationality French
- Languages French (mother tongue), English (fluent), German (intermediate), Esperanto (intermediate)