Pierre-Yves Bienvenu

Number Theorist and Combinatorist https://www.dmg.tuwien.ac.at/bienvenu/

Education

- 2014–2018 **PhD in Pure Mathematics**, University of Bristol, supervised by Prof. Julia Wolf
 - 2014 **Agrégation**, French national competitive exam for teaching, ranked 19th nationally
 - 2013 Master's degree in Pure Mathematics, Université Paris VII
- 2009–2014 Scholarship at the École Normale Supérieure Paris, major in Mathematics, minor in History of Science

Positions

- 2023– TU Vienna, Project Assistant (postdoc), FWF-RSF Project DioApp
- 2022–2023 Trinity College Dublin, Ireland, Teaching Fellow, This was a teaching position with little or no time for research
- 2021–2022 Graz University of Technology, Austria, Postdoc
- 2020–2021 Max Planck Institute for Mathematics, Bonn, Germany, Postdoc
- 2018–2020 Université de Lyon, France, Postdoc d'excellence MiLyon

Publications

- 1. Intersective sets for sparse sets of integers, with A. Le, T.H. Lê and J. Griesmer, to appear in Erg. Th. Dyn. Sys., DOI: 10.1017/etds.2024.73
- 2. On algebraic properties of power monoids of numerical monoids, with A. Geroldinger, to appear in Israel J. Math., DOI: 10.1007/s11856-024-2683-0
- 3. Metric decomposability theorems on sets of integers, Bull. London. Math. Soc. 55 (2023), 2653-2659, DOI: 10.1112/blms.12886
- 4. A transference principle for systems of linear equations, and applications to almost twin primes, with F. Shao and J. Teräväinen, Algebra Number Theory 17 (2023), No. 2, 497–539, DOI: 10.2140/ant.2023.17.497
- 5. On additive bases in infinite abelian groups, with T.H. Lê and B. Girard, J. Comb. Algebra 7 (2023), No. 1, 1-44, DOI: DOI 10.4171/JCA/67
- 6. Kneser's theorem in σ -finite abelian groups, with F. Hennecart, Canad. Math. Bull. 65 (2022), no. 4, 936–942, DOI: 10.4153/S0008439521001053
- 7. On the density or measure of sets and their sumsets in the integers or the circle, with F. Hennecart, J. Number Theory 212 (2020), 285–310, DOI: 10.1016/j.jnt.2019.11.004
- 8. A note on the bilinear Bogolyubov theorem, with A. Martínez and D. González, Proc. Amer. Math. Soc. 148 (2020), 23-31, DOI: 10.1090/proc/14658
- 9. A note on the set A(A+A), with F. Hennecart and I. Shkredov, Mosc. J. Comb. Number Theory 8 (2019), no. 2, 179–188, DOI: 10.2140/moscow.2019.8.179
- 10. Linear and quadratic uniformity of the Möbius function over $\mathbb{F}_{a}[t]$, with T. H. Lê, Mathematika 65 (2019), no. 3, 505–529, DOI: 10.1112/S0025579319000032
- 11. A bilinear Bogolyubov theorem, with T. H. Lê, European J. Combin. 77 (2019), 102–113, DOI: 10.1016/j.ejc.2018.11.003

- 12. Polynomial equations in function fields, Q. J. Math. 68 (2017), no. 4, 1395–1398, DOI: 10.1093/qmath/hax025
- 13. A higher-dimensional Siegel-Walfisz theorem, Acta Arith. 179 (2017), no. 1, 79–100, DOI: 10.4064/aa8600-10-2016
- 14. Asymptotics for some polynomial patterns in the primes, Proc. Roy. Soc. Edinburgh: Sect. A, 149 (2019), no. 5, 1241-1290, DOI: 10.1017/prm.2018.52

• Additional research achievements and awards

- 2020 Postdoctoral one-year grant of the Max Planck Society
- 2018 Postdoctoral two-years grant of the labex MiLyon, funded by the French Research Council
- 2018 Grant of the CRM Montréal for the school Probability and Number Theory (declined)
- 2017 Travel grant of the Alumni Foundation of Bristol for my stay at the Simons Institute
- 2014 PhD thesis grant of the UK's Engineering and Physical Science Research Council

Selected teaching and student supervision experience

- Summer Supervision of Titouan Donnart's project at Trinity College, Second year student of 2023 ENS Rennes (i.e. fourth year of higher education)
- 2022–2023 **Trinity College Dublin**, Two modules per term, each three hours per week, for Pure Maths and Engineering students from first to fourth year
- Spring 2022 **TU Graz**, Combinatorial and Additive Number Theory, TU Graz, Master's degree level Two hours per week over fifteen weeks, taught in English.
- Spring 2018 American University of Paris, Applied Statistics and Precalculus, both courses comprised four hours per week over fourteen weeks and were taught in English

International academic invitations

- March 2021 Stay at the Karl-Franzens Universität Graz, one month, invited by Alfred Geroldinger, cancelled due to Covid
- Sept. 2020 Heidelberg Laureate Forum, one-week meeting of Fields and Turing medallists and promising young researchers, cancelled due to Covid
- Feb. 2020 Stay at the Harish-Chandra Research Institute in Allahabad, three weeks, invited by Dr Gyan Prakash
- March 2018 Collaboration at the Autonomous University of Madrid, one week, invited by Pablo Candela
 - Feb. 2017 Collaboration at the University of Mississippi, one week, invited by Thai Hoang Lê

January- Invited PhD student for the "Pseudorandomness" term, Simons Institute for the

May 2017 Theory of Computing, Berkeley

Selected recent or upcoming invited talks

- 06/2025 Prime numbers and arithmetic randomness, CIRM Marseille-Luminy
- 06/2024 Additive Combinatorics conference, Renyi Institute Budapest
- 02/2024 Graz-ISTA Number Theory Days, TU Graz
- 09/2023 Minisymposium on Additive Combinatorics, Jahrestagung der Österreichischen Mathematischen Gesellschaft
- 03/2023 Combinatorics Seminar, University of Bristol
- 02/2023 Algebra and Number Theory seminar, University College Dublin
- 12/2022 Analytic and Elementary Number Theory meeting, Institut Henri-Poincaré, Paris

- 11/2022 Number Theory Seminar, University of Mississippi
- 07/2022 ArithRand workshop, TU Graz
- 06/2022 Open Webinar at the School of Mathematics, Hebei Normal University, online
- 02/2022 Number Theory seminar of the ICMAT, Madrid, online
- 11/2021 Seminar of the Browning Group, on site, IST Austria (Vienna)
- 03/2021 New York number theory seminar, City University of New York (CUNY)/online
- 06/2020 Combinatorial and Analytic Number Theory conference, CUNY/Online
- 02/2020 Stat-maths seminar, Indian Statistical Institute, Delhi

Academic Responsabilities

- 2019– Referee for Journal de Théorie des nombres de Bordeaux, Discrete Analysis, Journal of Combinatorial Theory Series A, Journal d'Analyse Mathématique, Proceedings of the Edinburgh Mathematical Society, Journal of Number Theory, Discrete Mathematics...
- 2019– Reviewer on MathSciNet

Programming languages

Sage/Python advanced IAT_EX advanced HTML elementary R elementary

Human languages

Bilingual French, English

Fluent German, Italian

Intermediate ~~Polish, ~Spanish

Basic Dutch, Ancient Greek

Miscellaneous

Volunteering Friends of the Elderly and Society of St Vincent de Paul Music Chorister with specialisation in Renaissance music Sport Cycling, Ultimate Frisbee