

Dr Matteo Vannacci

Department of Mathematics

UPV-EHU

Bilbao, 48610

Spain

email: vannacci.m@gmail.com

web: <https://matteovannacci.wordpress.com/>

Current

I am a Postdoc at the University of the Basque Country, attached to the *Groups, Topology and Applications* Research Group.

Previous Positions and Education

- Oct. 2015 – **Research and Teaching Assistant**, *Heinrich-Heine Universität Düsseldorf*, Germany.
Sep. 2019
- Sep. 2012 – **Ph.D. in Mathematics**, *Royal Holloway University of London*, Egham, UK.
Sep. 2015 *Thesis title*: On a family of hereditarily just infinite profinite groups which are not virtually pro- p
Supervisor: Dr. Yiftach Barnea
- Oct. 2010 – **M.Sc. in Mathematics (110/110 cum laude)**, *Università degli studi di Firenze*, Firenze, Italy.
Jul. 2012 *Dissertation*: Ellipticity Problems in Group Theory. *Supervisor*: Prof. Orazio Puglisi
- Oct. 2007 – **B.Sc. in Mathematics (110/110 cum laude)**, *Università degli studi di Firenze*, Firenze, Italy.
Oct. 2010 *Dissertation*: Steiner Systems and a Construction of Mathieu Groups. *Supervisor*: Dr. Fumagalli Francesco

Research Interests

Asymptotic properties of finite and infinite groups, profinite and pro- p groups, just infinite groups, generation and presentability properties in profinite groups, Hausdorff dimension of profinite groups, geometric group theory, probabilistic methods in residually finite groups, cohomology of pro- p groups.

List of Publications

- [10] G.C. Cook, M. Vannacci, *Probabilistic finiteness properties for profinite groups*, submitted.
- [9] C. Quadrelli, I. Snopce, M. Vannacci, *On pro- p groups with quadratic cohomology*, submitted.
- [8] G. Fernandez-Alcober, S. Gül, M. Vannacci, *On the asymptotic behaviour of the number of Beauville and non-Beauville p -groups*, Proc. LMS 120 (2019), no. 2, 220–241.
- [7] Y. Barnea, M. Vannacci, *On a family of hereditarily just infinite profinite groups with complete Hausdorff dimension spectrum*, J. Algebra Appl. 18 (2019), no. 11.
- [6] A. Babai, K. Fathalikhani, G. A. Fernandez-Alcober, M. Vannacci, *On self-similar finite p -groups*, to appear in Groups Geom. Dyn.
- [5] S. Kionke, M. Vannacci, *Positively finitely related profinite groups*, Isr. J. Math. 225 (2018), no. 2, 743–770.
- [4] B. Klopsch, M. Vannacci, *The lower rank of direct products of hereditarily just infinite groups*, Glasgow Math. J. 60 (2018), no. 1, 225–230.
- [3] B. Klopsch, M. Vannacci, *Embedding properties of hereditarily just infinite profinite wreath products*, J. Algebra 476 (2017), 297–310.
- [2] M. Vannacci, *On hereditarily just infinite profinite groups obtained via iterated wreath products*, J. Group Theory 19 (2016), no. 2, 233–238.
- [1] M. Vannacci, *Finite generation of infinitely iterated wreath products in product action*, Arch. Math. (Basel) 105 (2015), no. 3, 205–214.

Selected Talks

- Jan. 2020 **Probabilistic identities in residually finite groups**, RSME Jovenes, Castellò, Spain.
- Feb. 2019 **Probabilistic identities and profinite identities**, RSME Biennial Meeting, Santander, Spain.
- Dec. 2018 **Probabilistic finiteness properties**, HIM Trimester, Hausdorff Math. Institute, Bonn, Germany.
- Dec. 2018 **Quadratic pro- p groups**, Münster-Düsseldorf GeSAMT, Münster University, Münster, Germany.

- Mar. 2018 **Probabilistic Group Theory: A Survey**, *Algebra Seminar*, UPV, Bilbao, Spain.
- Dec. 2017 **Positively finitely related groups**, *Groups and Topological Groups*, TUW, Vienna, Austria.
- Dec. 2017 **Two proofs of a remarkable identity and zeta functions of groups**, *Number Theory Seminar*, Royal Holloway, University of London, UK.
- Jul. 2016 **Random relations and zeta functions of profinite groups**, *Zeta functions and motivic integration - Enumeration problems in Algebra and Geometry*, Düsseldorf, Germany.
- May 2015 **On Hausdorff dimension in infinitely iterated wreath products in product action**, *British Young Mathematicians Conference 2015*, University of Birmingham, Birmingham, UK.
- Jan. 2015 **On subgroup structure of Wilson groups**, *Junior Topology and Group Theory*, University of Oxford, Oxford, UK.
- Nov. 2014 **Un gruppo ereditariamente just-infinite che non è virtualmente pro- p** , *Algebra seminar*, Università degli Studi di Firenze, Firenze, Italy.
- Sep. 2014 **On properties of a family of hereditarily just infinite groups**, *Maths seminar*, National Taiwan Normal University, Taipei, Taiwan.
- Mar. 2014 **On Wilson groups**, *Kinder seminar*, University of Cambridge, Cambridge, UK.
- Jul. 2013 **Properties of some Hereditarily Just infinite Profinite Groups Constructed by Infinitely Many Wreath Products**, *PGTC 2013*, University of Manchester, Manchester, UK.

Research visits

- Dec. 2018 **Research visit at the Hausdorff Research Institute for Mathematics, Bonn, Germany.**
I was a visitor of the HIM programme “Logic and Algorithms in Group Theory”.
- Mar. 2018 **Research visit at the University of the Basque Country, Bilbao, Spain.**
- Sep. 2015–
Oct. 2015 **Internship with the G.R.E.C.A. Research Group at the University of the Basque Country, Bilbao, Spain.**
I worked with Prof. Fernandez-Alcober on finite self-similar groups. This led to the publication of [6].
- May 2015 **Research visit at the University of Düsseldorf, Düsseldorf, Germany.**
I visited the “Algebra und Zahlentheorie” research group to continue the work started with Prof. Benjamin Klopsch. This led to the publication of [3] and [4].
- Mar. 2014 **Research visit at the University of Düsseldorf, Düsseldorf, Germany.**
I visited the “Algebra und Zahlentheorie” research group to work with Prof. Benjamin Klopsch.

Selected Grants

- Oct. 2019–
Sep. 2021 **Grant at UPV/EHU, Two-years excellence postdoctoral grant at the University of the Basque Country.**
- Sep. 2015–
Oct. 2015 **Grant with the G.R.E.C.A. Research Group, Grant for a two months Internship with the G.R.E.C.A. Research Group at the University of the Basque Country.**
- Mar. 2013 **UoL PGR Study Costs Grant**, awarded by Royal Holloway to give a talk at PGTC2013 in Manchester.
- Sep. 2012–
Sep. 2015 **Reid Scholarship**, Ph.D and fees founding from Royal Holloway University of London, awarded on the basis of academic excellence.
- Sep. 2007–
Aug. 2012 **Riduzione delle tasse universitarie per produttività e merito**, I was awarded for five consecutive years this productivity and merit grant of the University of Florence for the best students of each academical year.
- Apr. 2007 **Prize “Filippo Lippi” 2007**, price awarded from the Rotary Club Prato to the best High School student in the city.
- Apr. 2006 **Prize “Panathlon Fair Play” 2006**, price awarded from Panathlon International Prato club to the most achieving student in the city.

Summer Schools Attended

- Jul. 2012 **Advanced Intern. School on Galois Groups**, University of the Basque Country, Bilbao, Spain.
I attended two courses of Number Theoretical focus: *The inverse Galois problem* by Prof. Gunter Malle and *Galois theory and arithmetic of p -extensions* by Prof. Christian Maire and Prof. Ján Mináč.

Aug. 2011 **Scuola Matematica Interuniversitaria**, Università degli Studi di Perugia, Perugia, Italy.
I attended courses in Representation Theory (Prof. N.Vavilov) and Algebraic Geometry (Prof. E.Arrondo) in this one month long summer school between my first and second year of Masters.

Teaching

- Bachelor** I was teaching assistant for Number Systems, Real Analysis, Linear Algebra, Probability and Ring Theory.
- Postgrad** I was teaching and marking assistant for Complex Analysis, Number Theory, Profinite Groups, Algebraic Groups and p -adic Analytic Groups.
- Others** In 2011 and 2012 I taught an introductory course on various topics in mathematics at the middle school “Ser Lapo Mazzei” in Prato for students aged 11 to 14.

Languages

Italian (native), English (fluent), German (proficient), Finnish (basic).