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Petru Constantinescu

Research Interests

Analytic Number Theory, Automorphic Forms and their Spectral Theory

Employment

2022-present **Postdoc**, *École Polytechnique Fédérale de Lausanne*, TAN group, mentored by Philippe Michel

2021–2022 **Postdoctoral Fellow**, *Max Planck Institute for Mathematics, Bonn*, mentored by Valentin Blomer

Education

2017–2021 **PhD Mathematics**, *University College London*, supervised by Yiannis Petridis
Thesis: *Distribution results for automorphic forms, their periods and masses*

2016–2017 **MASt in Mathematics (Part III)**, *University of Cambridge*
Distinction (85%)

2013–2016 **BSc Mathematics**, *Imperial College London*
First Degree Honours, Ranked 3rd in my year (91.4 %)

Publications and Preprints

Non-vanishing of geodesic periods of automorphic forms *(joint with A.C. Nordentoft)*, *(available here)*

Dissipation of Correlations of Automorphic Forms, arXiv:2112.01427

Residual equidistribution of modular symbols and cohomology classes for quotients of hyperbolic n-space *(joint with A.C. Nordentoft)* , *Trans. Amer. Math. Soc.* **375** (2022), 7001-7034

Distribution of modular symbols in $\mathbb{H}^3$, *Int. Math. Res. Not.* **2022**:7 (2022), 5425–5465

Scholarships and Awards

2024 **Junior fellowship for the research program Analytic Number Theory**, *Mittag-Leffler Institute*

2022 **Faculty of Mathematical and Physical Sciences Postgraduate Research Prize**, *University College London*
Awarded for my PhD thesis

2017–2021 **EPSRC PhD Studentship**, *London School of Geometry and Number Theory*

2020 **Davenport Prize in Pure Mathematics**, *University College London*

2017 **Santander Master's Prize**, *University of Cambridge*
Academic excellence in Part III

2016 **IBM Prize for excellence in Pure Mathematics**, *Imperial College London*
Awarded to one final year student

2015 **Gloucester Research LtD Prize**, *Imperial College London*

2015 **Winton Capital Management Prize in Mathematics**, *Imperial College London*
Best 2nd year group project

2015	**UROP Prize**, *Imperial College London*
	Best summer research project
2013	Prize for the best student in my year at the Romanian Mathematical Olympiad
2010,2011,2013	Gold medal at the Romanian National Mathematical Olympiad

Projects

2017-2018	LSGNT First Year Projects
	○ *Large Gaps between Primes*, supervised by Andrew Granville
	○ *The Gauss Circle Problem*, supervised by Igor Wigman
2017	Part III Essay, Cambridge
	○ *The Erdős Distinct Distances Problem*, supervised by Timothy Gowers
2015	Summer Undergraduate Project, Imperial College London
	○ *Additive structure of integers*, supervised by Martin Liebeck

Conferences and Seminars Organised

Sep 2023	Young Number Theorists in Bonn (YoBo) at MPIM in Bonn, Germany
Jun 2023	Arithmetic Statistics in Automorphic Forms and Analytic Number Theory (ArStAFANT) at EPF Lausanne, Switzerland
2022	MPIM Informal Number Theory Seminar (INTS)
2019-2020	London Analytic Number Theory Study Group

Student Supervision

2023-2024	Othmane Rih, Semester project on 'L-functions and Quantum Unique Ergodicity'
2023-2024	Matthew Dupraz, Semester project on 'Analytic properties and functional equation of Hecke L-functions'
2022-2023	Kevin Rizk, Master thesis on 'Bhargava's proof of van der Waerden's Conjecture'
2022-2023	Alec Schmutz, Semester project on 'Bounded gaps between primes'

Teaching Experience

2023-2024	Lecturer for MATH-313 Introduction to analytic number theory, EPFL
2022-2023	Teaching assistant for MATH-417 Topics in number theory, EPFL
2022-2023	Lecturer for MATH-313 Introduction to analytic number theory, EPFL
2020-2021	Moderator and Marking for Number Theory course, UCL
2017-2021	Organised problem solving classes and prepared the UCL team for the International Mathematics Competition
2018	Instructor at AwesomeMath Summer Program, University of Puget Sound
2017	Instructor at AwesomeMath Summer Program, Cornell University and San Jose State University
2016	Instructor at AwesomeMath Summer Program, Cornell University
2015	Teaching Assistant at AwesomeMath Summer Program, UC Berkeley
2014-2016	Tutoring volunteer as part of Imperial College Outreach Programme

Selected Talks

Jan 2024	Analytic Number Theory Workshop, Mittag-Leffler Institute, Stockholm, Sweden
Jul 2023	Analytic Number Theory & Automorphic Forms Conference in Patras, Greece
Apr 2023	Arithmetic Statistics, Automorphic Forms and Ergodic Methods, Bonn, Germany

Oct 2022	Groups, Arithmetic and Algebraic Geometry Seminar at EPFL, Lausanne, Switzerland
Sep 2022	Automorphic Forms Conference, Budapest, Hungary
Aug 2022	Building Bridges 5th EU/US Summer School and Workshop on Automorphic Forms and Related Topics (BB5), Sarajevo, Bosnia and Herzegovina
Jun 2022	Cohomology, Geometry and Explicit number theory (COGENT), Grenoble, France
Jun 2022	59th Seminar Aachen-Bonn-Köln-Lille, Bonn
May 2022	Workshop for Young Researchers in Mathematics – 11th Edition, Bucharest, Romania (online)
Apr 2022	Cologne Number Theory Seminar
Feb 2022	Oberseminar Algebra und Geometrie, Goethe Universität Frankfurt am Main
Nov 2021	MPIM Number Theory Lunch Seminar
Oct 2021	Oberseminar Analytic Number Theory and Automorphic Forms Bonn
Jun 2021	Bristol Linfoot Number Theory Seminar (online)
Jun 2021	Young Researchers in Mathematics (online)
Apr 2021	Sheffield Number Theory Seminar (online)
Feb 2021	London Junior Number Theory Seminar (online)
Nov 2020	The London-Paris Number Theory Seminar (online)
Nov 2020	London Mathematical Society's Virtual Graduate Student Meeting (online)
Jan 2020	UCL Postgrad Seminar
Oct 2019	London Junior Number Theory Seminar
Jan 2017	*The (surprising) equivalence of three theorems in Combinatorics*, Part III Seminars in Cambridge
Mar 2016	*Additive Structures on Integers*, Imperial Undergraduate Mathematics Colloquium
Feb 2016	*Geometry of Numbers*, Imperial Undergraduate Mathematics Colloquium
Nov 2015	*Crystals and Symmetry*, Imperial Undergraduate Mathematics Colloquium

Conferences/Workshops attended

Jan-Apr 2024	Analytic Number Theory Workshop, Mittag-Leffler Institute, Stockholm, Sweden
Sep 2023	Young Number Theorists in Bonn (YoBo) at MPIM in Bonn, Germany
Jul 2023	Analytic Number Theory & Automorphic Forms Conference in Patras, Greece
Jun 2023	Arithmetic Statistics in Automorphic Forms and Analytic Number Theory (ArStAFANT) at EPF Lausanne, Switzerland
Apr 2023	Arithmetic Statistics, Automorphic Forms and Ergodic Methods, Bonn, Germany
Sep 2022	Automorphic Forms Conference, Budapest, Hungary
Aug 2022	Masterclass: Relative trace formulae, Copenhagen, Denmark
Aug 2022	Building Bridges 5th EU/US Summer School and Workshop on Automorphic Forms and Related Topics (BB5), Sarajevo, Bosnia and Herzegovina
Jul 2022	The Second JNT Biennial Conference, Cetraro, Italy
Jun 2022	Cohomology, Geometry and Explicit number theory (COGENT), Grenoble, France
May 2022	Workshop for Young Researchers in Mathematics – 11th Edition, Bucharest, Romania *(online)*
Mar 2022	Young Scholars in the Analytic Theory of Numbers and Automorphic Forms, Bonn
Jun 2021	Young Researchers in Mathematics *(online)*
Jun 2021	Ninth Bucharest Number Theory Days *(online)*
Nov 2020	The London-Paris Number Theory Seminar *(online)*
Sep 2020	Research visit, Copenhagen
Jun 2020	Online Conference in Automorphic Forms

Dec 2019	Zeta Functions, Marseille, France
Sep 2019	Warwick-Oxbridge-Manchester-Bristol-London (WOMBL) 1-day meeting, Oxford, UK
Jul 2019	Second Symposium on Analytic Number Theory, Cetraro, Italy
Jun 2019	Arithmetic, geometry, and modular forms: a conference in honour of Bill Duke, Zurich, Switzerland
Apr 2019	Analytic Aspects of Automorphic Forms, Lille, France
Jan 2019	Trace functions and their applications, Monte Verita, Switzerland
Nov 2018	The London-Paris Number Theory Seminar, Paris, France
Nov 2018	Young Researchers in Algebraic Number Theory (Y-RANT), Sheffield, UK
Oct 2018	Srinivasa Ramanujan: in celebration of the centenary of his election as FRS, London, UK
Sep 2018	Arithmetic Ramsey Theory, Manchester, UK
Sep 2018	Elementare und Analytische Zahlentheorie (ELAZ), Bonn, Germany
Jul 2018	Building Bridges: 4th EU/US Summer School + Workshop on Automorphic Forms and Related Topics, Budapest, Hungary

Skills

Languages	English (**Fluent**), Romanian (**Native**), French (**Basic**)