Max Planck Institute for Mathematics
Vivatsgasse 7
53111 Bonn, Germany
+447956092872
constantinescu@mpim-bonn.mpg.de
https://petruconstantinescu.github.io/

Petru Constantinescu

Research Interests

Analytic Number Theory, Automorphic Forms and their Spectral Theory, Additive Combinatorics

Employment

2021–present **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

2021 *Dissipation of Correlations of Automorphic Forms*, arXiv:2112.01427

2021 *Residual equidistribution of modular symbols and cohomology classes for quotients of hyperbolic n-space*, with A.C. Nordentoft, arXiv:2010.12403

2020 *Distribution of modular symbols in* $\mathbb{H}^3$, accepted to **IMRN**, DOI:10.1093/imrn/rnaa241 arXiv:2005.07629

Scholarships and Awards

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

Seminars Organised

2019-2020 London Analytic Number Theory Study Group

Selected Talks

Dec 2021 Bonn-Paris hybrid workgroup on automorphic forms

Nov 2021 *Distribution of modular symbols*, MPIM Number Theory Lunch Seminar

Oct 2021 *Dissipation of Correlations of Automorphic Forms*, Oberseminar Analytic Number Theory and Automorphic Forms Bonn

Jun 2021 *Distribution of modular symbols*, Bristol Linfoot Number Theory Seminar

Jun 2021 *Dissipation of Correlations of Automorphic Forms*, Young Researchers in Mathematics

Apr 2021 *Distribution of modular symbols*, Sheffield Number Theory Seminar

Feb 2021 *The delta-symbol method of Duke, Friedlander and Iwaniec*, London Analytic Number Theory Study group

Feb 2021 *Distribution of modular symbols*, London Junior Number Theory Seminar

Nov 2020 *Distribution of modular symbols*, The London-Paris Number Theory Seminar

Nov 2020 *Distribution of modular symbols*, London Mathematical Society's Virtual Graduate Student Meeting

Feb 2020 *Quantum unique ergodicity for holomorphic cusp forms*, London Analytic Number Theory Study Group

Jan 2020 *Spectral Theory of Automorphic Forms*, UCL Postgrad Seminar

Nov 2019 *Distribution of modular symbols*, London Analytic Number Theory Study Group

Oct 2019 *Distribution results for modular symbols*, London Junior Number Theory Seminar

May 2019 *Matomaki and Radziwill theorem for the Liouville function*, London Analytic Number Theory Study Group

March 2019 *Duke's Equidistribution Theorem*, London Analytic Number Theory Study Group

Nov 2018 *Prime Geodesic Theorem*, London Analytic Number Theory Study Group

Oct 2018 *The Selberg Trace Formula*, London Junior Number Theory Seminar

May 2018 *Gauss Circle Problem*, London Analytic Number Theory Study Group

May 2018 *Number Theory in Function Fields*, London Analytic Number Theory Reading Group

Jan 2018 *Conditional Upper Bounds on Zeta*, London Analytic Number Theory Study Group

Jan 2018 *Probabilistic Number Theory*, London Analytic Number Theory Reading Group

Nov 2017 *Erdös distinct distances problem*, London Analytic Number Theory Study Group

Nov 2017 *The Circle Method*, London Analytic Number Theory Reading Group

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

Teaching Experience

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
Summer 2018	Instructor at AwesomeMath Summer Program, University of Puget Sound
Summer 2017	Instructor at AwesomeMath Summer Program, Cornell University and San Jose State University
Summer 2016	Instructor at AwesomeMath Summer Program, Cornell University
Summer 2015	Teaching Assistant at AwesomeMath Summer Program, UC Berkeley
2014-2016	Tutoring volunteer as part of Imperial College Outreach Programme

Conferences/Workshops attended

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**)
IT	Mathematica, Matlab, Python