Department of Mathematics
University of Milan
Milan, Italy

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Education and Employment

University of Milan
Postdoctoral Researcher 2018-Present

University of British Columbia
Postdoctoral Fellow 2016-2018

Cornell University
Visiting Assistant Professor 2015-2016

Princeton University
Ph.D. in Mathematics September 2015
Doctoral Advisor: Christopher Skinner
M.A. in Mathematics June 2012

Cornell University
B.A. in Mathematics, Summa Cum Laude with Distinction in All Subjects February 2010

Publications and Preprints

"Numerical computation of Petersson inner products and q-expansions," submitted - arXiv:1802.09740 [math.NT], with associated SageMath code available on my website.

"Anticyclotomic p-adic L-functions and Ichino's formula," submitted - arXiv:1612.06948 [math.NT].

"Anticyclotomic p-adic L-functions and Ichino's formula," Ph.D. Thesis, Princeton University Mathematics Department, September 2015.

"Duality properties of indicitraces of knots," (with Colin Adams, Katherine Hawkins, Charmaine Sia, Rob Silversmith, Bena Tshishiku), *Geometriae Dedicata* 159, 2012, 185-206

"Planar and spherical stick indices," (with Colin Adams, Katherine Hawkins, Charmaine Sia, Rob Silversmith, Bena Tshishiku), *Journal of Knot Theory and its Ramifications* 20, 2011, 721-739

"Generating sequences of finite groups," Undergraduate Thesis, Cornell University Mathematics Department, January 2010.

"Congruences for Han's generating function," (with Sally Wolfe), *Involve* 2, 2008, 225-236

Teaching

Math 221 (Matrix Algebra) Spring 2018, UBC
Math 340 (Introduction to Linear Programming) Fall 2017, UBC
Math 221 (Matrix Algebra) Spring 2017, UBC
Math 422/501 (Fields and Galois Theory) Fall 2016, UBC
Math 4310 (Linear Algebra) Spring 2016, Cornell
Math 2210 (Linear Algebra) Fall 2015, Cornell

Math 202 (Introduction to Linear Algebra) Fall 2013, Princeton

REU Instructor, "Generating Sets for Finite Groups" Project Summer 2011, Cornell

Awards

National Science Foundation Graduate Research Fellowship 2011-2015

Harry S. Kieval Prize for Excellence in Mathematics, Cornell Mathematics Dept. 2010

Phi Beta Kappa, Cornell University 2010

Research Talks

University of Washington, Number theory seminar April 2017

UBC, Number theory seminar October 2016

Upstate Number Theory Conference, Contributed talk April 2016

Binghamton University, Arithmetic seminar (2 talks) December 2015

McGill University, Québec-Vermont number theory seminar September 2015

Cornell University, Number theory seminar (2 talks) September 2015

Other Departmental Activities

Number theory seminar organizer, UBC, Fall 2016-present

Putnam practice session co-organizer, Cornell, Fall 2015

Computational Mathematics and Programming Experience

SageMath - I have used SageMath and its capabilities with modular forms extensively for my project on numerical computation of Petersson inner products (resulting in my paper "Numerical computation of Petersson inner products and q-expansions"). The Sage code for this project is available at `http://www.mat.unimi.it/users/djcollins/code/index.html`

GAP - My undergraduate research projects at Cornell with Keith Dennis involved using GAP to study finite groups in various ways.

Knowledge of Python, Perl, Java, C, and other computer languages - In addition to using mathematical software for research, I have also done programming as a hobby, in college courses, and as part of various extracurricular activities from high school onwards. I am familiar with a variety of programming languages used in many contexts from these experiences.

Experience with the Linux operating system - I have primarily used Linux for the last 15 years.