

ALEXANDER BERTOLONI MELI

Email: abertolo@bu.edu · Office: 510 Computing and Date Sciences

EMPLOYMENT

Boston University <i>Assistant Professor</i>	Boston, MA 2024-present
University of Bonn <i>Postdoc</i>	Bonn, Germany 2023-2024
University of Michigan <i>Research Assistant Professor</i>	Ann Arbor, MI 2020-2023

EDUCATION

UC Berkeley PhD in Mathematics	Berkeley, CA May 2020
University of Chicago B.A. in Mathematics, GPA 3.96	Chicago, IL June 2014

PAPERS AND PREPRINTS

1. *The $B(G)$ -parametrization of the local Langlands correspondence* (with Masao Oi). (preprint)
<https://arxiv.org/pdf/2211.13864.pdf>
2. Appendix: *Relationship to the classical averaging formula* (appendix to *Geometric Eisenstein series, intertwining operators, and Shin's averaging formula* by Linus Hamann). (preprint)
<https://arxiv.org/abs/2209.08175>
3. *The stable trace formula for Igusa varieties, II* (with Sug Woo Shin). (preprint)
<https://arxiv.org/abs/2205.05462>
4. *An averaging formula for the cohomology of PEL-type Rapoport–Zink spaces* (preprint)
<https://arxiv.org/abs/2103.11538>
5. *The Scholze–Shin Conjecture for Unramified Unitary Groups I: The Case of No Endoscopy* (with Alex Youcis). (preprint available on website)
6. *Compatibility of the Fargues–Scholze correspondence for unitary groups* (with Linus Hamann and Kieu Hieu Nguyen).
Mathematische Annalen, pp. 1-59, 2024.
<https://arxiv.org/abs/2207.13193>
7. *Global $B(G)$ with adelic coefficients and transfer factors at non-regular elements*
Mathematische Zeitschrift, pp. 1-47, 2024.
<https://arxiv.org/abs/2103.11570>
8. *The Jacobson–Morozov theorem for Langlands parameters in the relative setting* (with Naoki Imai and Alex Youcis).
International Mathematics Research Notices, 2023
<https://arxiv.org/abs/2203.01768>
9. *An Approach to the Characterization of the Local Langlands Correspondence* (with Alex Youcis).
Representation Theory, pp. 415-430, 2023
<https://arxiv.org/abs/2003.11484>
10. *The Kottwitz conjecture for unitary PEL-type Rapoport–Zink spaces* (with Kieu Hieu Nguyen).
Journal für die Reine und Angewandte Mathematik (Crelle's Journal), pp. 1-68, 2023
<https://arxiv.org/abs/2104.05912>
11. *The Cohomology of Unramified Rapoport–Zink Spaces of EL-Type and Harris's Conjecture*.
The Journal of the Institute of Mathematics of Jussieu, pp. 1-56, 2021
<https://arxiv.org/pdf/1802.01629.pdf>

SERVICE AND OUTREACH

- University of Michigan
 - Michigan REU (Summer 2022)
 - Math Corp (Summer 2020, Winter 2022)
 - Served on Peter Dillery's thesis defence committee (May 2022)
 - Co-organized number theory RTG seminar (Fall 2021)
 - Served on David Schwein's thesis defense committee (July 2021)
- UC Berkeley
 - Co-organized seminar on Kaletha-Weinstein paper: "On the Kottwitz Conjecture for moduli spaces of local shtukas" (Fall 2019)
 - Co-organized working group on Weinstein lectures
Number Theory and Arithmetic Geometry RTG Workshop (May 2019)
 - Co-organized working group on Guralnick and Tiep lectures
Number Theory and Arithmetic Geometry RTG Workshop (May 2018)
 - Co-organized graduate student seminar on Bruhat-Tits Theory. (Spring 2018)
 - Co-organized UC Berkeley DRP, Spring 2015-Spring 2017
 - Ran 4-lecture mini-course on p -divisible groups, isocrystals, and Rapoport-Zink spaces. (Spring 2015)
 - Co-organized graduate student seminar on Shimura Varieties. (Fall 2015)

MENTORING

- Leolin Nkuete, *Drinfeld Modules and Applications*, Young African Mathematicians at University of Bonn, 2023-2024
- Nir Elber, *Representations of Galois gerbes*, Summer REU at UofM, Summer 2022
- Maxwell Ye, *Representations of Galois gerbes*, Summer REU at UofM, Summer 2022
- Miho Kasai, *Introduction to p -adic numbers*, independent study at UofM, Fall 2021
- Yingzi Yang, *Group cohomology*, independent study at UofM, Spring 2021
- Walter Spurlock, *Introduction to matrix groups*, UC Berkeley Directed Reading Program, Fall 2018
- James Leng, *Elliptic curves*, UC Berkeley DRP Spring 2018,
- Yuxi Han, *Trees and Galois groups and fundamental groups*, UC Berkeley DRP, Fall 2016, Spring 2017
- Binglin Song, *Primes of the form $x^2 + ny^2$* , UC Berkeley DRP, Fall 2015
- Victoria Park, *Differentiable manifolds*, UC Berkeley DRP, Spring 2015

TEACHING

University of Michigan

Course Instructor

- Math 475, Elementary Number Theory (Winter 2023)
- Math 678, Modular Forms (Fall 2022)
- Math 419, Linear Algebra (Winter 2022)
- Math 217, IBL Linear Algebra (Fall 2021)
- Math 116, Calculus II (Winter 2021)
- Math 115, Calculus I (Fall 2020)

Ann Arbor, MI

Fall 2020- present

University of California, Berkeley

Graduate Student Instructor (GSI)

- Math 110, Linear Algebra (Spring 2020)
- Math 110, Linear Algebra (Fall 2018)
- Math 55, Discrete Mathematics (Fall 2017)
- Math 54, Linear Algebra and Differential Equations (Fall 2016)
- Math 104, Real Analysis (Spring 2016)
- Math 54, Linear Algebra and Differential Equations (Fall 2015)
- Math 1B, Calculus (Spring 2015)
- Math 1A, Calculus (Fall 2014)

Berkeley, CA

Fall 2014- Spring 2020

INVITED TALKS GIVEN IN SEMINARS, WORKSHOPS, AND CONFERENCES

- Arthur Packets - IASM, Hangzhou China. November, 2023.
- Oberseminar Arithmetische Geometrie und Darstellungstheorie - Max Planck Institute of Mathematics, Bonn, Germany. October, 2023
- Institut de Mathematiques de Jussieu - Paris Rive Gauche. June, 2023
- Representation Theory, L-Functions, and Arithmetic. Pittsburgh. March, 2023
- Quebec-Vermont Number Theory Seminar. January, 2023
- Johns Hopkins Number Theory Seminar. December 2022
- Lie Group and Representation Theory Seminar. University of Maryland, December 2022
- Lie Group Seminar. MIT, November 2022
- CLAP2 Conference. Bonn, August 2022
- Midwest Representation Theory Conference. March 2022
- Indiana University Algebra Seminar. October 2021 (Talk given remotely via Zoom)
- University of Munster. June 2021 (Talk given remotely via Zoom)
- Kyoto University Number Theory Seminar. June 2020 (Talk given remotely via Zoom)
- UC Berkeley Number Theory Seminar. May 2020 (Talk given remotely via Zoom)
- Purdue University Number Theory Seminar. March 2020 (Talk cancelled due to Covid19)
- Stanford Number Theory Seminar. March 2020 (Talk cancelled due to Covid19)
- Group, Lie, and Number Theory Seminar. University of Michigan, January 2020
- Junior Number Theory Days. Johns Hopkins, December 2019
- Arithmetic of Shimura Varieties Workshop. MFO Oberwolfach, January 2019
- Talk in lecture series by Sug Woo Shin on the Langlands Rapoport Conjecture. University of Tokyo, May 2018
- West Coast Algebraic Topology Summer School. (with Tony Feng), August 2016