

## Employment

2021-2024 **J. J. Sylvester Assistant Professor** *Johns Hopkins University*  
Faculty mentor: David Savitt

## Education

2017-2021 **Ph.D in Mathematics** *London School of Geometry and Number Theory (King's College London)*  
Supervised by James Newton and Toby Gee  
2016-2017 **Master of Pure Mathematics** *Université Paris 13, Mention Très Bien*  
Fall 2015 **Budapest Semesters in Mathematics** *Budapest, Hungary*  
2012-2016 **B.A. Mathematics** *University of California, Berkeley, Berkeley, CA, High Honors*

## Publications and preprints

- **Mod  $\ell$  gamma factors and a converse theorem for finite general linear groups** with Jacksyn Bakeberg, Mathilde Gerbelli–Gauthier, Heidi Goodson, Gilbert Moss and Robin Zhang  
Submitted. [arXiv](#)
- **Zariski density of crystalline points** with Gebhard Böckle and Vytautas Paškūnas  
Published in PNAS, 2023. [arXiv](#)
- **On local Galois deformation rings** with Gebhard Böckle and Vytautas Paškūnas  
Accepted in Forum of Mathematics, Pi, 2023 (to appear). [arXiv](#)
- **Deformation theory of the trivial mod  $p$  Galois representation for  $GL_n$**   
Published in IMRN, 2020. [arXiv](#)

## Selected Invited Research Talks

Oct 2023 **Algebra, Combinatorics, and Geometry Seminar**, University of Pittsburgh  
Sep 2023 **AMS Special Session on Homological Aspects of  $p$ -adic Groups and Automorphic Representations**, University of Buffalo  
Jun 2023 **Conference on Local Langlands and  $p$ -adic methods**, Hausdorff Institute, Bonn  
Mar 2023 **Number Theory Seminar**, Ohio State University  
Feb 2023 **Number Theory Seminar**, Stanford University  
Jan 2023 **AMS Special Session on Rethinking Number Theory**, Joint Math Meetings 2023, Boston  
Nov 2022 **Philadelphia Area Number Theory Seminar**, Temple University  
Aug 2022 **Department Colloquium**, University of Hawaii at Manoa  
May 2022 **Automorphic Project Research Seminar**, Virtual  
Feb 2022 **Number Theory Seminar**, University of Chicago  
Feb 2022 **Joint IAS/Princeton Number Theory Seminar**, Institute for Advanced Study  
Sep 2021 **Number Theory Seminar**, Johns Hopkins University  
May 2021 **Number Theory Seminar**, University of Warwick  
May 2021 **Number Theory Seminar**, Purdue University  
Jan 2021 **Number Theory Seminar**, UC San Diego  
Dec 2020 **Number Theory Seminar**, University of Copenhagen  
Nov 2020 **London-Paris Number Theory Seminar**, Virtual  
Nov 2020 **POINT: New Developments in Number Theory**, Virtual  
Oct 2020 **Number Theory Seminar**, Cambridge University  
Jun 2020 **Séminaire de géométrie arithmétique et motivique**, Paris 13

Jul 2019 **Conference on  $p$ -adic modular forms and Galois representations**, University of Sheffield

## Scholarships and Awards

May 2020 **Nominated for “Outstanding Teaching Assistant Award”** *King's College London*

2017-2021 **London School of Geometry and Number Theory (LSGNT) Studentship**

2016-2017 **PGSM International Scholarship**

## Seminars Organized

2022-2023 **Johns Hopkins Number Theory Seminar**, with Rahul Dalal

2021-2022 **Johns Hopkins Number Theory Seminar**, with Aurélien Sagnier

Summer 2020 **Reading group on  $p$ -adic local Langlands for  $GL_2(\mathbb{Q}_p)$** , with Andrew Graham

Winter 2019 **Reading group on derived deformation theory of Galois representations and derived Hecke algebras**, with Carl Wang-Erickson, Pol van Hoften and Alice Pozzi

2018-2019 **London Junior Number Theory Seminar**, with Johannes Girsch

## Professional Service

### Undergraduate Mentorship

2023-2024 **Liam Baca and Yash Lal**, Mentor for an independent study in algebraic number theory.

Fall 2022 **Akash Sureshkumar**, Mentor for an independent study on elliptic curves.

### Thesis Defenses

Spring 2023 **Kalyani Kansal**, Served on thesis defense committee at Johns Hopkins.

Spring 2023 **Luochen Zhao**, Served on thesis defense committee at Johns Hopkins.

Spring 2022 **Zhongyipan Lin**, Served on thesis defense committee at Johns Hopkins.

### Refereeing

○ Advances in Mathematics

○ IMRN

## Teaching Experience

Spring 2023 **Graduate topics course in Number Theory** *Johns Hopkins University*

Fall 2023 **Calculus II** *Johns Hopkins University*

Spring 2023 **Introduction to Topology** *Johns Hopkins University*

Spring 2023 **Algebraic Number Theory II** *Johns Hopkins University*

Fall 2022 **Algebraic Number Theory I** *Johns Hopkins University*

Spring 2022 **Calculus I** *Johns Hopkins University*

Spring 2022 **Algebraic Number Theory II** *Johns Hopkins University*

Fall 2021 **Algebraic Number Theory I** *Johns Hopkins University*

2017–2020 **Outreach Instructor** *London Maths Outreach*, Co-founded/taught for the program.

Spring 2020 **Graduate teaching assistant** *King's College London*, Taught weekly tutorials to 3 groups for “Representation Theory of Finite Groups”, taught by Dmitri Panov

Fall 2018 **Graduate teaching assistant** *King's College London*, Taught weekly tutorials to 3 groups for “Elementary Number Theory”, taught by James Newton

Dec 2017 **High School Outreach** *Allderdice High School/UCL*, Gave expository talks to high school students on the  $p$ -adic numbers

Summer 2015 **Counselor** *PROMYS Program*, 6 weeks, Mentored high school students learning undergraduate level algebraic number theory. Participated in the counselor seminar.

## Conferences/Workshops Attended

Sep 2023 *AMS Fall Eastern Sectional Meeting*, University of Buffalo

Jun 2023 *Conference on Local Langlands and  $p$ -adic methods*, Hausdorff Institute, Bonn  
 Jan 2023 *Arithmetic Aspects of Deformation Theory*, Banff International Research Station  
 Jan 2023 *Joint Math Meetings*, Boston, MA  
 Dec 2022 *Junior Number Theory Days*, Boston, MA  
 Dec 2021 *Junior Number Theory Days*, Johns Hopkins University  
 Jul 2021 *Rethinking Number Theory II*, Online  
 Apr 2021 *Towards a mod  $p$  Langlands correspondence*, Essen, Germany (online)  
 Apr 2021 *Derived Galois Deformation Rings and Cohomology of Arithmetic Groups*, Oberwolfach, Germany (online)  
 Nov 2020 *London-Paris Number Theory Seminar*, Online  
 Sep 2020 *Workshop on Serre weights conjectures and geometry of Shimura varieties*, Online  
 May 2020 *CARTOON Conference*, Online  
 Oct 2019 *Modularity and Moduli Spaces*, Oaxaca, Mexico  
 Sep 2019 *Hausdorff School on the Emerton-Gee stack and related topics*, Bonn, Germany  
 Jul 2019  *$p$ -adic modular forms and Galois representations*, Sheffield, United Kingdom  
 Jun 2019 *Padova school on Serre conjectures and the  $p$ -adic Langlands program*, Padova, Italy  
 May 2019 *Workshop on the  $p$ -adic Langlands program and related topics*, London, England  
 Apr 2019 *MSRI Hot Topics: Recent progress in the Langlands program*, MSRI, Berkeley  
 Nov 2018 *Young Researchers in Algebraic Number Theory*, Sheffield, United Kingdom  
 Jul 2018 *Workshop on Galois Representations*, Heidelberg, Germany  
 Apr 2018 *MSRI Hot Topics: The Homological Conjectures*, MSRI, Berkeley, CA  
 Mar 2018 *Arizona Winter School 2018: 'Iwasawa Theory'*, University of Arizona, Tucson, AZ  
 Jun 2017 *Géométrie d'Arakelov et applications diophantiennes*, Institut Fourier, Grenoble

## Languages

English Native speaker  
 French Proficient

## References

- Prof. Emily Braley  
 Johns Hopkins University  
 ebraley1@jhu.edu  
 (teaching)
- Prof. James Newton  
 Oxford University  
 newton@maths.ox.ac.uk
- Prof. David Savitt  
 Johns Hopkins University  
 savitt@jhu.edu
- Prof. Gebhard Böckle  
 Heidelberg University  
 gebhard.boeckle@iwr.uni-heidelberg.de
- Prof. Matthew Emerton  
 University of Chicago  
 emerton@math.uchicago.edu