

# Renee Bell

Curriculum Vitae  
<http://www.math.upenn.edu/~rhhbell>

David Rittenhouse Laboratory  
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## Employment

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*Hans Rademacher Instructor*, University of Pennsylvania 2018-Present  
*Postdoc*, Université Paris-Sud September 2019-August 2020

## Education

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*B.A. Mathematics*, University of California, Berkeley May 2013  
*Ph. D. Mathematics*, Massachusetts Institute of Technology May 2018

## Papers

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Renee Bell, Jeremy Booher, William Chen, Yuan Liu. *Tamely Ramified Covers of the Projective Line with Alternating and Symmetric Monodromy*, to appear in *Algebra and Number Theory*, available at <https://arxiv.org/pdf/2007.12299>

Renee Bell. *Local-to-Global Extensions to Wildly Ramified Covers of Curves*, available at arXiv:1710.09067

Renee Bell, Clifford Blakestad, Alina Carmen Cojocaru, Alexander Cowan, Nathan Jones, Vlad Matei, Geoffrey Smith and Isabel Vogt. *Constants in Titchmarsh divisor problems for elliptic curves*, *Research in Number Theory* **6** (2020)

Renee Bell, Ching-Wei Ho, and Robert Strichartz. *Energy Measures of Harmonic Functions on the Sierpinski Gasket*, *Indiana Univ. Math. J.* Volume 63 (2014), p. 831-868.

## Conferences Organized

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AMS Mathematical Research Communities, **Explicit methods in arithmetic geometry in characteristic  $p$**  (Joint with Julia Hartmann, Valentijn Karemaker, Padmavathi Srinivasan, and Isabel Vogt) June 2019

## Talks

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Pomona Research in Mathematics Experience July 2021

Title: *Analogies Between Fields and Spaces: Galois Groups and Fundamental Groups*

Arizona Winter School April-May 2021

Title: *Strange new landscape: an exploration of the  $p$ -adic numbers and modular forms*

Joint Math Meetings January 2021

Title: *Tamely ramified covers of the projective line with alternating and symmetric monodromy.*

Penn Undergraduate Math Society November 2020

Title: *RSA, NSA, FBI, BLM: Cryptography, number theory, and a back door*

Joint Math Meetings, Denver	January 2020
Title: <i>Local-to-Global Extensions for Galois Covers of Curves in Characteristic <math>p</math></i>	
Séminaire Arithmétique et Géométrie Algébrique	September 2019
Title: <i>Local-to-Global Extensions for Galois Covers of Curves in Characteristic <math>p</math></i>	
Philadelphia Undergraduate Mathematics Lecture Series	February 2019
Title: <i>Analogies Between Fields and Spaces: Galois Groups and Fundamental Groups</i>	
UC Berkeley Arithmetic Geometry and Number Theory Seminar	November 2018
Title: <i>Local-to-Global Extensions for Galois Covers of Curves in Characteristic <math>p</math></i>	
Northwestern Number Theory Seminar	October 2018
Title: <i>Local-to-Global Extensions for Galois Covers of Curves in Characteristic <math>p</math></i>	
University of Wisconsin - Madison Number Theory Seminar	October 2018
Title: <i>Local-to-Global Extensions for Galois Covers of Curves in Characteristic <math>p</math></i>	
Emory Algebra and Number Theory Seminar	September 2018
Title: <i>Local-to-Global Extensions for Galois Covers of Curves in Characteristic <math>p</math></i>	
Harvard Number Theory Seminar	November 2017
Title: <i>Local-to-Global Extensions for Galois Covers of Curves in Characteristic <math>p</math></i>	
Georgia Tech Algebra Seminar	November 2017
Title: <i>Local-to-Global Extensions for Galois Covers of Curves in Characteristic <math>p</math></i>	
AMS Fall Southeastern Sectional Meeting	September 2017
Title: <i>Local-to-Global Extensions for Galois Covers of Curves in Characteristic <math>p</math></i>	
Summer Undergraduate Math Research at Yale	July 2017
Title: <i>Analogies Between Fields and Spaces: Galois Groups and Fundamental Groups</i>	
Algebraic Geometry Seminar at NYU	April 2017
Title: <i>Local-to-Global Extensions for Galois Covers of Curves in Characteristic <math>p</math></i>	
Baby Algebraic Geometry Seminar at Harvard	April 2017
Title: <i>Local-to-Global Extensions for Galois Covers of Curves in Characteristic <math>p</math></i>	
University of Illinois at Chicago Number Theory Seminar	November 2016
Title: <i>Galois Covers of Curves and Nonabelian Artin-Schreier Theory</i>	
Pure Math Graduate Student Seminar at MIT	April 2016
Title: <i>Complex Multiplication</i>	
Seminar on Topics in Arithmetic, Geometry, Etc at MIT	September 2015
Title: <i>Abelian Varieties over the Complex Numbers</i>	
Seminar on Topics in Arithmetic, Geometry, Etc at MIT	April 2015
Title: <i>Finite flat group schemes</i>	
Kan seminar at MIT	October 2014
Title: <i>The spectrum of an equivariant cohomology ring 1</i>	
Seminar on Topics in Arithmetic, Geometry, Etc at MIT	September 2014
Title: <i>Periods and Cohomology of Algebraic Varieties</i>	
Kan seminar at MIT	September 2014
Title: <i>Cohomologie modulo 2 des complexes d'Eilenberg Mac Lane</i>	

2013 Joint Mathematics Meetings January 2013  
 Event: AMS Session on Undergraduate Research in Analysis

Student Algebraic Geometry Seminar at Berkeley November 2012  
 Title: *Cohomology of Conjugate Varieties*

## Teaching and Mentoring Experience

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*Speaker for Arizona Winter School* April-May 2021  
 Taught 6-week course for early graduate students and advanced undergraduates titled Strange new landscape: an exploration of the p-adic numbers and modular forms

*Instructor for Math 170 at UPenn* Spring 2021  
 Instructor for “ideas in mathematics” course, an introduction to mathematical ideas for non-math majors

*Instructor for Math 503 at UPenn* Spring 2021  
 Instructor for second-semester master’s level abstract algebra

*Instructor for Math 502 at UPenn* Fall 2020  
 Instructor for master’s level abstract algebra

*Instructor for Math 499 at UPenn* Fall 2019  
 Independent study course on elliptic curves

*Instructor for Math 240 at UPenn* Spring 2019  
 Taught partial differential equations for non-math majors

*Instructor for Math 312 at UPenn* Fall 2018-Spring 2019  
 Taught second-semester linear algebra for non-math majors

*Teaching Assistant for 18.03 at MIT* Spring 2018  
 Taught recitation for linear algebra and differential equations

*Teaching Assistant for 18.02A at MIT* Spring 2017  
 Taught recitation for an accelerated multivariable calculus class

*Teaching Assistant for 18.01A at MIT* Fall 2016  
 Taught recitation for an accelerated single-variable calculus class

*Mentor for Directed Research Program at MIT* January 2016  
 Led one-on-one reading courses for two undergraduate women

*Research Mentor, MIT Summer Research Program, MIT* Summer 2014  
 Mentored an undergraduate research project on representation theory

*Mathematics Tutor, Disabled Students Program, UC Berkeley* Spring 2012 – Spring 2013  
 Tutored disabled students in calculus

*Counselor, Ross Mathematics Program, Ohio State University* Summer 2011  
 Employer: Clay Mathematics Institute

*UGSI, Suitcase Clinic, UC Berkeley* Fall 2010  
 Trained volunteers for Suitcase Clinic, a student-run free clinic which provides services to homeless and low-income people in the Berkeley area

*Teaching Assistant, Cal Teach Program* Spring 2010  
 Assisted teacher Juliana Jones at Longfellow Middle School, a public school in Berkeley.

## **Selected Attended Conferences**

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Arizona Winter School: Perfectoid Spaces (University of Arizona)	March 2017
Fundamental Groups in Arithmetic Geometry (Institut Henri Poincaré)	May 2016
Workshop in Local-Global Principles and Their Obstructions (University of Pennsylvania)	October 2015
AMS Summer Institute in Algebraic Geometry (University of Utah)	July 2015

## **Awards**

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MIT Dean's Fellowship	Fall 2013
Highest Honors, UC Berkeley Department of Mathematics	Spring 2013
Phi Beta Kappa	2012