

209 S 33rd street, 4W1 DRL,  
Department of Mathematics,  
University of Pennsylvania,  
Philadelphia PA 19104, USA  
☎ +1 (206) 419 7423  
✉ pbharath@math.upenn.edu  
🌐 www.math.upenn.edu/~pbharath

# Bharathwaj Palvannan

## Employment

2016- **Hans Rademacher Instructor (postdoc),** *University of Pennsylvania, USA.*

## Education

2010-2016 **PhD in Mathematics,** *University of Washington, Seattle, USA.*  
Advisor: Ralph Greenberg

2006-2010 **B.Tech in Engineering Physics,** *Indian Institute of Technology Bombay, India.*

## Papers and Preprints

**On Selmer groups and factoring  $p$ -adic  $L$ -functions,** *arXiv:1605.01026,*  
Accepted for publication in *International Mathematics Research Notices* (2017).

**Height one specializations of Selmer groups,** *arXiv: 1510.08386,*  
Accepted for publication in *Annales de l'Institut Fourier* (2018).

**On free resolutions of Iwasawa modules,** *with Alexandra Nichifor,*  
submitted *arXiv:1707.01485.*

**Codimension two cycles in Iwasawa theory and elliptic curves with supersingular reduction,** *with Antonio Lei, submitted* *arXiv:1806.07214.*

**Codimension two cycles in Iwasawa theory and tensor product of Hida families,**  
*with Antonio Lei, in preparation.*

## Invited Talks

June 2018 **Oberseminar,** *Universität Duisburg-Essen, Germany.*

May 2018 **The Bielefeld Arithmetic Geometry Seminar,** *Universität Bielefeld, Germany.*

May 2018 **Workshop: Iwasawa Theory and Related Topics,** *University of Heidelberg, Germany.*

May 2018 **Number theory seminar,** *University of Illinois, Chicago.*

Nov 2017 **Quebec Vermont Number theory seminar,** *Concordia University, Canada.*

Sept 2017 **Number theory seminar,** *Univeristy of British Columbia, Canada.*

Sept 2017 **Algebra seminar,** *University of Pennsylvania, USA.*

Mar 2017 **Number theory seminar,** *Université Laval, Canada.*

Jan 2017 **Philadelphia Area Number Theory Seminar,** *Bryn Mawr, USA.*

Jun 2016 **Workshop: New Directions in Iwasawa theory,** *Banff Research Center, Canada,*  
Video link: <https://goo.gl/EksZ2s>.

Apr 2016 **Galois seminar,** *University of Pennsylvania, USA.*

Jan 2016 **Number theory seminar,** *University of California Los Angeles, USA.*

- Nov 2015 **Number theory seminar**, *University of Arizona, USA.*  
 Oct 2014 **Number theory seminar**, *University of Washington USA.*  
 Sept 2014 **Number theory seminar**, *IIT Bombay, India.*

### Contributed Talks: 20 minutes

- Oct 2016 **Maine/Québec Number theory conference**, *Université Laval, Canada.*  
 Mar 2016 **30th Automorphic forms workshop**, *Wake Forest University, USA.*  
 Oct 2015 **Midwest Number theory conference**, *University of Illinois Chicago, USA.*  
 Sept 2015 **Boston-Keio workshop**, *Boston University USA.*

### Invited conference participation

- June 2018 **Algebraische Zahlentheorie**, *Oberwolfach, Germany.*  
 March 2018 **Arizona Winter School on Iwasawa Theory**, *University of Arizona Tucson, USA,*  
 Study group guide for John Coates's study group on Weak Leopoldt conjecture.

### Visits

- Aug 2018 **Research in Pairs**,  
*Oberwolfach, Germany*, with Marc Masdeu (Barcelona) and Chris Williams (London).  
 June 2018 **Algebraic geometry and Arithmetic group**,  
*Universität Duisburg-Essen, Germany*, Visiting Andreas Nickel.

### Awards

- Spring 2013 Robert and Elaine Phelps fellowship *University of Washington*

### Selected Workshops

- Jan 2017 **Number Theory Monthly program**, *Centre de Recerca Matemàtica, Barcelona, Spain,*  
 Integral overconvergent modular forms Workshop by Adrian Iovita.  
 July 2015 **Algebraic Geometry Bootcamp**, *University of Utah Salt Lake City, USA,*  
 Shimura Varieties Project group of Ana Caraiani.  
 March 2013 **Arizona Winter School**, *University of Arizona Tucson, USA,*  
 Modular forms and Modular curves Project group of Jared Weinstein.

### Other Conferences and Workshops attended

- March 2018 Homological conjectures *MSRI, Berkeley, USA*  
 July 2017 Iwasawa 2017 *University of Tokyo, Japan*  
 May 2017 Workshop on Arithmetic Cherns-Simons theory *University of Leiden, Netherlands*  
 Mar 2017 Perfectoid Spaces *University of Arizona, USA*  
 May 2015  $p$ -adic methods in Number theory *University of California, Berkeley, USA*  
 June 2014  $p$ -adic variation in Number Theory *Boston University, USA*  
 May 2014 Atkin Memorial workshop *University of Illinois Chicago, USA*  
 Feb 2014 Perfectoid spaces and their applications *MSRI Berkeley, USA*  
 July 2012 Pan-Asian NTC, Workshop on Bloch-Kato conjectures *IISER Pune, India*  
 June 2012  $p$ -adic modular forms and arithmetic *University of California Los Angeles, USA*

## Mentoring

- Masters **Andrea Thevis (completed)**, *Elliptic curves and cryptography*,  
currently a PhD student at Saarbrücken.
- Masters **Weichen Zhou (completed)**, *Elliptic curves over  $\mathbb{C}$  with complex multiplication*.
- Ind. Study **Yao-Rui Yeo (completed)**, *Galois representations*.

## Teaching at University of Pennsylvania

- Math 104: Calculus I**,  
Fall 2018 <https://canvas.upenn.edu/courses/1413906>  
Fall 2016 <https://canvas.upenn.edu/courses/1333438>.
- Math 240: Calculus III (Introduction to Linear algebra and ODEs)**,  
Fall 2018 <https://canvas.upenn.edu/courses/1413905>  
Spring 2017 <https://canvas.upenn.edu/courses/1350696>.
- Spring 2018 **Math 312: Linear Algebra**,  
<https://canvas.upenn.edu/courses/1391242>.
- Fall 2016 **Math 420: Ordinary differential equations**,  
<https://canvas.upenn.edu/courses/1334099>.
- Fall 2017 **Math 620: Algebraic Number Theory**,  
<https://canvas.upenn.edu/courses/1368694>.
- Spring 2018 **Math 621: Algebraic Number Theory**.

## Teaching at University of Washington

- Spring 2016 **Introduction to ordinary differential equations (Instructor)**,  
<https://canvas.uw.edu/courses/1042105>.
- Matrix Algebra with applications (Instructor)**,  
Summer 2015 <https://canvas.uw.edu/courses/973608>  
Winter 2015 <https://canvas.uw.edu/courses/948727>  
Spring 2014 <https://canvas.uw.edu/courses/898451>  
Winter 2014 <https://canvas.uw.edu/courses/883256>.
- Summer 2013 **Introduction to mathematical reasoning (Instructor)**,  
<https://canvas.uw.edu/courses/842178>.  
Teaching assistant for various undergraduate calculus courses

## Department services at University of Pennsylvania

- 2017-2019 Preliminary examination committee  
2017-2019 Transfer credit committee  
2016-2017 AP/Make-Up Exam  
2016-2017 Undergraduate Committee

## Other synergistic activities

- 2013, 2014 **Graduate TA mentor**, *University of Washington, USA*,  
Facilitated the TA training program and mentored 5 incoming graduate students both in  
Fall 2013 and Fall 2014.