

Curriculum Vitae Yichao TIAN

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Basic Information:

Date of birth: May 31, 1983
Place of birth: Sichuan/China

Current Research Interests:

Arithmetic algebraic geometry: p -adic Hodge theory, Geometry of Shimura varieties in characteristic $p > 0$, p -divisible groups, and p -adic modular forms.

Employment

- September 2021-present, Professor, Morningside Center of Mathematics, Chinese Academy of Science, Beijing, China
- September 2018-August 2021, Professor, University of Strasbourg, France
- October 2015-August 2018, Bonn Junior Fellow, Bonn University, Germany
- July 2011-September 2015, Researcher at Morningside Center of Mathematics, Chinese Academy of Science, Beijing, China
- September 2008-June 2011, Veblen Research Instructor, Princeton University and Institute for Advanced Study

Education

- Ph. D. in Mathematics, University Paris-13, France, September 2005-June 2008
Thesis Title: “*Sous-groupes canoniques et monodromie p -adique des groupes de Barsotti-Tate*”
Thesis Advisor: Prof. Ahmed Abbes
Defense date: November 19th, 2007
- Master in Mathematics, University Paris-sud 11, France, September 2004-June 2005
- Bachelor in Fundamental Science, Tsinghua University, Beijing, China, September 2000-June 2004.

Publication and Prepublication

1. On the Beilinson-Bloch-Kato conjecture for Rankin-Selberg motives, joint with Yifeng Liu, Liang Xiao, Wei Zhang, Xinwen Zhu, [arXiv:1912.11942](https://arxiv.org/abs/1912.11942), submitted.

2. Supersingular locus of Hilbert modular varieties, arithmetic level raising, and Selmer groups (joint with Yifeng Liu), *Algebra and Number Theory*, Vol. **14** (2020), No. 8, 2059–2119.
3. Tate cycles on some quaternionic Shimura varieties mod p (Joint with Liang Xiao), *Duke Math. Journal*, Vol. **168**, No. 9 (2019), 1551-1639.
4. On Tate conjecture for the special fibres of some unitary Shimura varieties (joint with David Helm and Liang Xiao), *Algebra and Number Theory*, **11** (2017), 2213-2288.
5. p -adic cohomology and classicality of overconvergent Hilbert modular forms, (Joint work with Liang Xiao), *Astérisques* **382** (2016), 73-162.
6. On Goren-Oort stratification for quaternionic Shimura varieties (Joint work with Liang Xiao), *Compositio Math.*, Vol. **152** (2016), 2134-2220.
7. Modularity lifting theorem in parallel weight one and applications to the Artin conjecture: the tamely ramified case (Joint work with Payman Kassaei and Shu Sasaki), *Forum of Math. Sigma*, Vol. **2**, 2014, e 18, p.58.
8. Classicality of overconvergent Hilbert eigenforms: Case of quadratic residue degree, *Rendiconti del Seminario Matematico della Università di Padova*, Vol. **132**, 2014, 133-229.
9. An upper bound on the ramification filtration of finite group schemes and applications, *Algebra and Number Theory*, Vol. **6**, No. 2 (2011), 231-242.
10. p -adic monodromy of the universal deformation of a HW-cyclic Barsotti-Tate group, *Documenta Math.* **14** (2009), 397-440.
11. Canonical subgroups of Barsotti-Tate groups, *Annals of Math.*, **172** No.2 (2010), 955-988.

Teaching Experience

- *Algebraic Number Theory* at Bonn University, Winter semester 2017, Bonn, Germany.
- Graduate Student Seminar *Modular forms and Galois representations* at Bonn University, Summer semester 2017, Bonn, Germany
- *Arithmetic of Elliptic Curves* at Bonn University, Winter Semester, 2016, Bonn, Germany.
- *Introduction to Rigid Geometry* at Bonn University, Summer Semester, 2016, Bonn, Germany.
- *Introduction to Intersection Theory* at Bonn University, Winter Semester, 2015, Bonn, Germany.
- *Algebraic Number Theory* at Tsinghua University, Spring Semester, 2014, Beijing, China.
- *Basic Number Theory* at Summer School at Tsinghua University, July-August 2011, Beijing, China.
- *Abelian Varieties* at a Summer School at Tsinghua University, July-August 2010, Beijing, China.
- **Mat204** *Advanced Linear Algebra*, 2011 Spring, Princeton University
- **Mat202** *Linear Algebra*, 2010 Spring and Fall, Princeton University
- **Mat201** *Multivariable Calculus*, 2009 Fall, Princeton University
- Teaching Assistant for *Galois Theory*, September 2006-June 2007, University Paris-13, France

- Teaching Assistant for *Linear Algebra*, September 2005-June 2006, University Paris-13, France

Visiting Experience of more than two weeks

- September 17th-October 17th, 2014, Institut des Hautes Etudes Scientifiques, Bures-sur-Yvette, 91440, France.
- September 1st-September 30th, 2013, Institut des Hautes Etudes Scientifiques, Bures-sur-Yvette, 91440, France.
- October 1st-November 30th, 2012, Institut des Hautes Etudes Scientifiques, Bures-sur-Yvette, 91440, France.
- March 4th-March 31st, 2012, Université Paris-Nord 13, Villetaneuse, 93430, France.
- September 1st-September 30th 2011, Institut des Hautes Etudes Scientifiques, Bures-sur-Yvette, 91440, France.
- June 28th 2010-August 28th 2010, Mathematical Science Center of Tsinghua University, Beijing, 100084, China
- August 1st 2009-August 23th 2009, Morningside Center of Mathematics, Beijing, 100190, China
- June 1st 2009-July 30th 2009, Institut des Hautes Etudes Scientifiques, Bures-sur-Yvette, 91440, France

Selected Lectures

1. *Beilinson-Bloch-Kato conjecture for Rankin-Selberg motives*, Arithmetic Geometry in Carthage, June 17-26, Carthage, 2019, Tunisia.
2. *Supersingular locus of Hilbert modular varieties and arithmetic applications*, 45 minutes talk at 7th International Congress of Chinese Mathematicians, August 9th 2016, Beijing, China.
3. *On the Goren-Oort stratification of quaternionic Shimura varieties and applications*, 45 minutes talk at 6th International Congress of Chinese Mathematicians, July 18th, 2013, Taipei, China.
4. *Cohomologie p -adique et classicité des formes cuspidales surconvergentes de Hilbert*, Deuxième journée du programme ANR Théorie de Hodge p -adique et Développement, October 5th, 2012, IHES, France
5. *Analytic continuation of overconvergent Hilbert modular forms of parallel weight one*, Workshop on the p -adic Langlands program: recent developments and applications, April 23-27, 2012, Fields Institute, Toronto, Canada.
6. *Classicality of overconvergent Hilbert modular forms in the quadratic inert case*, in the conference “Automorphic forms and Galois representations” organized by London Mathematical Society at Durham, U.K, July 18th-28th, 2011.
7. *p -Adic Analytic Continuation of Genus 2 Overconvergent Hilbert Eigenforms in the Inert Case*, at Galois representation and automorphic forms Seminar, Institute for Advanced Study, Princeton, NJ, 08540, March 17th, 2011.
8. *From ramification filtration to higher canonical subgroups*, in the international conference “Formes Modulaires, Théorie de Hodge p -adique et Applications” Roscoff (France), July 13th-17th, 2009

9. *Canonical subgroups of p -divisible groups*, in Algebraic Geometry Seminar in Mathematics Department of Princeton University, February 24th, 2009
10. *p -adic monodromy of the universal deformations of Barsotti-Tate groups*, in the conference “Of Ramification and Vanishing Cycles” Mathematics Department, Tokyo University, Japan, September 10th-14th, 2007
11. *Ramification et monodromie des groupes de Barsotti-Tate*, in the Mini-Conference “Géométrie Arithmétique, Représentations Galoisienne et Formes Modulaires” University Paris-13, France, June 6-8, 2007