

FANG-TING TU

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Department of Mathematics,
Louisiana State University,
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EMPLOYMENT RECORD

- Fall 2016 - Assistant Professor, Louisiana State University, USA
- Jan. 2016 — Feb. 2016 Postdoctoral Fellow, National Center for Theoretical Sciences, Taiwan
- Mentor: Yifan Yang
- Fall 2105 Semester Program Research Fellow, Institute for Computational and
Experimental Research in Mathematics, USA.
- Fall 2013 — Summer 2015 Postdoctoral Fellow, National Center for Theoretical Sciences, Taiwan
- Mentor: Wen-Ching Winni Li
- Spring 2012 — Spring 2013 Assistant Professor, Waseda University, Japan
- 7 / 5 / 2010 — 8 / 13 / 2010 Instructor, National Chiao Tung University, Taiwan

EDUCATION

- September 2013 **PhD in Applied Mathematics**, National Chiao Tung University.
Research area: Number theory.
Thesis: Automorphic Forms on Shimura Curves
Advisor: Yifan Yang.
- March 2012 **D. Sc. in Mathematics**, Waseda University.
Research area: Number theory.
Thesis: On the Arithmetic of Quaternion Orders and Its Applications
Advisor: Kiichiro Hashimoto.
- April 2011~March 2012 Research student (Doctoral program equivalent)
A recipient of the Graduate Students Study Abroad Program,
sponsored by National Science Council, Taiwan.
Department of Pure and Applied Mathematics,
School of Fundamental Science and Engineering, Waseda University.
Research area: Number theory.
Advisor: Kiichiro Hashimoto.
- June 2006 **M. Sc. in Applied Mathematics**, National Chiao Tung University.
Research area: Number theory.
Thesis: Modular parameterization of rational elliptic curves.
Advisor: Yifan Yang.

June 2004

B.Sc. in Applied Mathematics, National Chiao Tung University.

VISITING

Waseda University, Japan, 2009/7/25-2009/9/25, 2010/1/20-2010/2/10

Louisiana State University, USA, 2014/4/26-2014/7/1, 2015/4/5-2015/7/3

Iowa State University, USA, 2014/7/2-2014/7/16

AWARDS RECEIVED

1. NCTU Outstanding Teaching Assistant (2009, Abstract Algebra)

TEACHING:

1. Lecturer:

Math 1552, Calculus (II), Spring 2017 (LSU)

Math 2085, Linear Algebra, Fall, 2016 (LSU)

Calculus (I), summer course, 2010 (NCTU)

Foundations of Algebra, Fall 2012 (WU, International course, English)

Advanced Algebra, Fall 2012 (WU, International course, English)

Science and Engineering Laboratory (Physics), 2012, Spring and Fall

(理工学基礎実験一物理, WU, International course, English)

Foundation Modern Mathematics, Recitation, 2012 Fall (現代数学演習, WU)

Representation Theory of Finite Groups, 2013, NCTS Summer Program on Number Theory

Introduction to Galois Cohomology, 2014, NCTS Spring Short Course on Number Theory

Linear Algebra Math2085, 2016 Fall (LSU)

2. Teaching Assistant: (at NCTU)

2005 Calculus (I),(II)

2006 Linear Algebra (I), Elementary Number Theory

2007 Abstract Algebra (I),(II)

2008 Abstract Algebra (I), Linear Algebra (II)

2009 Abstract Algebra (I),(II)

2010 Abstract Algebra (I),(II)

PUBLICATIONS

1. Fang-Ting Tu and Yifan Yang, *Defining equations of $X_0(2^{2n})$* , Vol.46, No.1:105-113, 2009, Osaka J. Math. (SCI)
2. *Fang-Ting Tu, *On orders of $M(2;K)$ over a non-archimedean local field*. Int. J. Number Theory, 7(5):1137-1149, 2011. (SCI)
3. Fang-Ting Tu and Yifan Yang, *Lattice packing from quaternion algebras*. RIMS Kôkyûroku Bessatsu, B32, Res. Inst. Math. Sci. (RIMS), Kyoto, 2012.
4. Fang-Ting Tu and Yifan Yang, *Algebraic transformations of hypergeometric functions and automorphic forms on Shimura curves*. Trans. Amer. Math. Soc. **365** (2013), 6697-6729 (SCI)
5. *Fang-Ting Tu. *Algebraic transformations of hypergeometric functions arising from theory of Shimura curves*. RIMS Kôkyûroku Bessatsu B44, 223-245, Res. Inst. Math. Sci. (RIMS), Kyoto, 2013.
6. Kiichiro Hashimoto and Fang-Ting Tu. *Genus two lifts of Q -curves with $\sqrt{-2}$ multiplication*. 早稲田整数論研究集会 2012 報告集(Japanese)
7. *Fang-Ting Tu, *Schwarzian differential equations associated to Shimura curves of genus zero*. Pacific J. Math. 269 (2014), no. 2, 453–489.
8. Yi-Shuan Lin and *Fang-Ting Tu. *Twisted Kloosterman Sums*. J. Number Theory 147 (2015), 666–690.
9. Alyson Deines, Jenny G. Fuselier, Ling Long, Holly Swisher, Fang-Ting Tu. *Generalized Legendre Curves and Quaternionic Multiplicati*. J. Number Theory, 161 (2016), 175-203.
10. Alyson Deines, Jenny G. Fuselier, Ling Long, Holly Swisher, Fang-Ting Tu. *Hypergeometric series, truncated hypergeometric series, and Gaussian hypergeometric functions*. Directions in Number Theory, Proceedings for Women in Numbers 3, AWM series, 125-159. eprint arXiv: 1501.03564
11. Jenny G. Fuselier, Ling Long, Ravi Ramakrishna, Holly Swisher, Fang-Ting Tu. *Hypergeometric Functions over Finite Fields*. Submitted. eprint arXive: 1510.02575
12. Sharon Frechette, Holly Swisher, Fang-Ting Tu. *A Cubic Transformation Formula for Appell-Lauricella Hypergeometric Functions over Finite Fields*. eprint arXive: 1701.04526

PREPRINTS and PREPARING ATRICLES

1. Fang-Ting Tu *Defining equations of $X_0(2^n)$* .
2. Fang-Ting Tu and Yifan Yang, *Evaluation of Certain Hypergeometric Functions over Finite Fields*
3. Ling Long, Fang-Ting Tu, Noriko Yui and Wadim Zudilin, *Supercongruences for Rigid Hypergeometric Calabi-Yau Threefolds*.

THESES

1. Fang-Ting Tu, *Modular parameterization of rational elliptic curves*, M. Sci. thesis, National Chiao Tung University, 2006.
2. Fang-Ting Tu, *On the Arithmetic of Quaternion Orders and Its Applications*, D. Sci. thesis, Waseda University, 2012.
3. Fang-Ting Tu, *Automorphic Forms on Shimura Curves*, D. Sci. thesis, National Chiao Tung University, 2013.

REFEREE

The Ramanujan Journal, Taiwanese Journal of Mathematics, Transactions of the American Mathematical Society.

REVIEWER:

MathSciNet

CONFERENCE ORGANIZER:

1. Southern Regional Number Theory Conference. In honor of Robert Perlis on his retirement. April 8-9, 2017. (LSU)

GRANTS:

1. NSF: Algebra and Number Theory (submitted)
2. Simons Foundation: Mathematics and Physical Sciences-Collaboration Grants for Mathematicians (submitted)
3. AWM-NSF Mathematics Mentoring Travel Grants (awarded: 3000/5000)

CONFERENCE TALKS

1. Defining equations of $X_0(2^{2n})$, XXVth Journées Arithmétiques, Edinburgh, July 5, 2007.
2. On orders of $M(2;K)$ over a non-archimedean local field, Joint Workshop on Number Theory between Japan and Taiwan, Japan, March, 2010.
3. On orders of $M(2;K)$ over a non-archimedean local field, Taiwan-Korean Workshop on Number Theory, Taiwan, July 5, 2010.
4. Algebraic transformations of hypergeometric functions and automorphic forms on Shimura curves, PMI-NCTS Number Theory Workshop, Korea, July 25, 2011.
5. Algebraic Transformations of Hypergeometric Functions and Automorphic Forms on Shimura Curves, (京都数理解析研究所研究集会「代数的整数論とその周辺」) Program of RIMS Workshop “Algebraic Number Theory and Related Topics”, Japan, November 28, 2011.
6. Genus two lifts of Q -curves which are of GL_2 -type with $\sqrt{-2}$ multiplication, 第16回早稲田整数論研究集会(The 16th Number Theory Meeting at Waseda Univ), Japan, March 21, 2012
7. Genus two lifts of Q -curves which are of GL_2 -type with $\sqrt{-2}$ multiplication, 2012 NCTS Japan-Taiwan Joint Conference on Number Theory, Taiwan, August 31, 2012.
8. Schwarzian differential equations associated to Shimura curves of genus zero, 2013 NCTS Minimal Workshop on Shimura Curves, Taiwan, March 20, 2013.
9. Schwarzian differential equations associated to Shimura curves of genus zero, Workshop on Algebra and Geometry 2013, Taiwan, April 28, 2013.
10. Automorphic Forms on Shimura Curves (I)(II), TIMS 2013 Summer School on Algebra and Number Theory, Taiwan, August 29,30, 2013
11. Automorphic Forms on Shimura Curves, 4th East Asia Number Theory Conference, Taiwan, January 21, 2014
12. Automorphic Forms on Shimura Curves of Genus Zero, Women in Numbers 3, Canada, April 24, 2014
13. Automorphic Forms on Shimura Curves of Genus Zero, 2014 NCTS Conference on the Impact of Computation on Number Theory, Taiwan, August 3, 2014
14. Generalized Legendre Curves and Quaternionic Multiplication, The Annual meeting of the Taiwan Mathematica Society, Taiwan, December 6, 2014.
15. Generalized Legendre Curves and Quaternionic Multiplication, LSU Mini-Workshop on Algebraic Varieties, Hypergeometric Series, and Modular Forms, USA, April 7, 2015
16. Hypergeometric Series and Gaussian Hypergeometric Functions, LSU Mini-Workshop on Algebraic Varieties, Hypergeometric Series, and Modular Forms, USA, April 14, 2015
17. Hypergeometric Functions and Hypergeometric and Hypergeometric Abelian Varieties, BIRS Workshop: Modular Forms in String Theory, Canada, September 29, 2016.

18. Generalized Legendre Curves and Quaternionic Multiplication, 2017 Joint Mathematics Meetings, USA, January 7, 2017.
19. Supercongruences Occurred to Rigid Hypergeometric Type Calabi–Yau Threefolds, MATRIX program : Hypergeometric Motives and Calabi-Yau Differential Equations, Australia, January 17, 2017.
20. Supercongruences Occurred to Rigid Hypergeometric Type Calabi–Yau Threefolds, MATRIX program : Winter 2017 Workshop on Algebraic Varieties, Hodge Theory and Motives, Toronto, March 10, 2017.

Colloquium and Seminar Talks

1. Finite Graph and Orders in $M(2, K)$ over Local Fields, NCTS Seminar on Number Theory, Taiwan, March 24, 2010.
2. Lattice Packings from Quaternion Algebras, NCTS Working/ Student Seminar on Number Theory, Taiwan, August 5, September 7, 2010.
3. Algebraic Transformations of Hypergeometric Functions and Automorphic Forms on Shimura Curves. NCTS Seminar on Number Theory, Taiwan, December 15, 2010.
4. Equations of Shimura Curves of Genus One, NCTS Seminar on Number Theory, Taiwan, March 9, 2011.
5. On Orders of $M(2;K)$ over a Non-Archimedean Local Field, Waseda University Seminar on Number Theory, Japan, May 20, 2011.
6. Equation of Shimura Curves (I) and (II), NCTS Seminar on Number Theory, Taiwan, March 14, 2012
7. Genus two lifts of Q -curves which are of GL_2 -type with $\sqrt{-2}$ multiplication, Waseda University Seminar on Number Theory, Japan, October 5, 2012.
8. Some Results in the Theory of Modular Curves and Shimura Curves, Department of Mathematics, National Central University, Taiwan, March 19, 2013.
9. Some Results in the Theory of Modular Curves and Shimura Curves, Department of Mathematics, National Kaohsiung Normal University, Taiwan, April 15, 2013.
10. Twisted Kloosterman Sums, NCTS Seminar on Number Theory, Taiwan, November 27, 2013.
11. Evaluation of Certain Hypergeometric Functions over Finite Fields, NCTS Seminar on Number Theory, Taiwan, January 8, 2014.
12. Automorphic Forms on Curves of Genus Zero, LSU Seminar on Number Theory, USA, April 27, 2014
13. Composition Laws (I), (II), NCTS Seminar on Number Theory, Taiwan, October 15 & 29, 2014.
14. Counting Number Fields of Low Degree, NCTS Seminar on Number Theory, Taiwan, November 5, 2014.
15. Modular Forms on Shimura Curves and Hypergeometric Functions, Colloquium, LSU, USA, February 15, 2016.

16. Hypergeometric Functions over Finite Fields and Their Applications, LSU Algebra and Number Theory Seminar, October 4, 2016.
17. Hypergeometric Functions over Finite Fields, Texas A&M Number Theory Seminar, October 26, 2016.