Curriculum Vitae – Xinyi Yuan (updated: March 2021)

Name

Xinyi Yuan

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Employment

Professor, Beijing International Center for Mathematical Research, Peking University, 2020.01–

Assistant & Associate Professor, Department of Mathematics, UC Berkeley, 2012.7-2020.12

Assistant Professor, Department of Mathematics, Princeton University, 2011-2012

Research Fellow, Clay Mathematics Institute, 2008-2011

Ritt Assistant Professor, Department of Mathematics, Columiba University, 2010-2011

Post-doctor, Department of Mathematics, Harvard University, 2009-2010

Post-doctor, School of Mathematics, Institute for Advanced Study, 2008-2009

Education

B.S. Mathematics, Peking University, Beijing, 2000-2003

Ph.D. Mathematics, Columbia University, New York, 2003-2008

Awards

Clay Research Fellowship, 2008-2011

Gold Medal, 41st International Mathematical Olympiad, Korea, 2000

Research Interests

Number theory. More specifically, I work on Arakelov geometry, Diophantine equations, automorphic forms, Shimura varieties and algebraic dynamics. In particular, I focus on theories giving relations between these subjects.

Journals refereed

Annals of Mathematics, Compositio Mathematicae, Duke Mathematical Journal, International Mathematics Research Notices, Inventiones Mathematicae, Journal of Algebraic Geometry, Journal of American Mathematical Society, Journal of Differential Geometry, Journal of Number Theory, Kyoto Journal of Mathematics, Mathematical Research Letters, Proceedings of the London Mathematical Society, Ramanujan Journal.

Organized workshop

Special Session on Applications of Non-Archimedean Geometry, AMS Sectional Meeting, Richmond 2010.

Bay Area Arithmetic Geometry and Number Theory Day, Berkeley-Stanford-UCSC, 2013-2018

Undergraduate Number Theory Day, Berkeley, CA, 2018

West Lake Number Theory Workshop, Hangzhou, China, 2020

Teaching Experiences

Calculus II, Columbia University, Fall 2006

Calculus III, Columbia University, Summer 2007

Multivariable Calculus, Princeton University, Fall 2011

Advanced Linear Algebra, Princeton University, Spring 2012

Number Theory (254A), UC Berkeley, Fall 2012, Fall 2013, Fall 2016

Number Theory (254B), UC Berkeley, Spring 2013, Spring 2014, Spring 2017

Cryptography (116), UC Berkeley, Fall 2013

Calculus (1A), UC Berkeley, Fall 2014

Linear Algebra and Differential Equations (54), UC Berkeley, Spring 2016

Introduction to Number Theory (115), UC Berkeley, Spring 2016

Calculus (1B), UC Berkeley, Fall 2016

Calculus (16B), UC Berkeley, Fall 2018

Topics in Number theory II, Peking University, Spring 2021

Publications

[1] *Big Line Bundles over Arithmetic Varieties*, Inventiones Mathematicae 173 (2008), no. 3, 603–649.

[2] (with Shou-Wu Zhang and Wei Zhang) *The Gross-Kohnen-Zagier Theorem over Totally Real Fields*, Compositio Mathematicae 145 (2009), 1147-1162.

[3] *On Volumes of Arithmetic Line Bundles*, Compositio Mathematicae 145 (2009), 1447-1464.

[4] *Algebraic Dynamics, Canonical Heights and Arakelov Geometry*, Fifth International Congress of Chinese Mathematicians. Part 1, 2, 893–929, Amer. Math. Soc., Providence, RI, 2012.

[5] (with Shou-Wu Zhang and Wei Zhang) *The Gross-Zagier Formula on Shimura Curves*, Annals of Mathematics Studies, Princeton University Press, 2012.

[6] (with Tong Zhang) *Effective bound of linear series on arithmetic surfaces*, Duke Math. J. 162 (2013), no. 10, 1723–1770.

[7] (with Tong Zhang) *Relative Noether inequality on fibered surfaces*, Adv. Math. 259 (2014), 89-115.

[8] *Volumes of arithmetic Okounkov bodies*, Math. Z. 280 (2015), no. 3-4, 1075–1084.

[9] (with Shou-Wu Zhang) *Arithmetic Hodge index theorem for adelic line bunldes*, Math. Ann. (2016), 1-49.

[10] (with Ye Tian and Shou-Wu Zhang) *Genus Periods, Genus Points and Congruent Number Problem*, Asian J. Math. 21 (2017), no. 4, 721–773.

[11] (with Tong Zhang) *Effective Bounds of Linear Series on Algebraic Varieties and Arithmetic Varieties*, J. Reine Angew. Math. 736 (2018), 255–284.

[12] (with Shou-Wu Zhang) *On the averaged Colmez conjecture*, Ann. of Math. (2) 187 (2018), no. 2, 533–638.

Preprints

[1] *On Volumes of Arithmetic Line Bundles II*, preprint.

[2] (with Ye Tian and Wei Zhang) *A relative trace formula proof of the Gross-Zagier formula*, preprint.

[3] (with Shou-Wu Zhang and Wei Zhang) *Triple Product L-series and Gross-Schoen Cycles*, preprint.

[4] (with Shou-Wu Zhang) *Arithmetic Hodge index theorem for adelic line bunldes II: finitely generated fields*, preprint.

Invited Talks

Number theory seminar, MIT, Spring 2019.

Number theory seminar, Columbia University, Spring 2019.

Conference on Specialization Problems in Diophantine Geometry, Cetraro, Italy, July 2017.

Summer school on Arakelov geometry of Shimura varieties, Grenoble, France, June 2017.

Number theory seminar, Caltech, Spring 2017.

Number theory seminar, Columbia University, December 2016.

Plenary Lecture, The 7th International Congress of Chinese Mathematicians, Beijing, July 2016.

Summer school on the Langlands correspondence in arithmetic and geometry, KIAS, Korea, July 2016.

Southern California Number Theory Day, California State University, Fullerton, Fall 2015

Number Theory Seminar, UCLA, Fall 2015.

Number Theory Seminar, Princeton University, Fall 2015.

Number Theory Seminar, Duke University, Fall 2015.

Number Theory Seminar, Stanford University, Fall 2015.

Algebra & Number Theory Seminar, UCSC, Spring 2015.

Young Mathematician Forum, Beijing International Center for Mathematical Research, Summer 2013.

Number Theory Seminar, Stanford University, Spring 2013.

Western Algebraic Geometry Symposium, Harvey Mudd College, Spring 2013.

Bay Area Algebraic Number Theory and Arithmetic Geometry Day, UCSC, Fall 2012.

Conference on Arithmetic Geometry, Oberwolfach, Summer 2012.

Conference on the Occasion of the 70th Birthday of Lucien Szpiro, CUNY, Spring 2012.

Workshop on complex and p-adic Dynamics, ICERM, Providence, Spring 2012.

Colloquium, UC Berkeley, Spring 2012.

Princeton University/IAS Number Theory Seminar, Princeton University, Fall 2011.

Colloquium, Rutgers University at Newark, Fall 2011.

BC-MIT Joint Number Theory, MIT, Fall 2011.

Algebra Seminar, University of Pennsylvania, Fall 2011.

The Third Pan Asia Number Theory Conference, Beijing, Summer 2011.

Number Theory Seminar, Université Paris Diderot-Paris 7, Paris, Summer 2011.

Number Theory Seminar, Stanford University, Spring 2011.

Algebraic Geometry Seminar, Stanford University, Spring 2011.

Colloquium, Northwestern University, Spring 2011.

Number Theory Seminar, UC Berkeley, Spring 2011.

Plenary Lecture, The 5th International Congress of Chinese Mathematicians, Beijing, Fall 2010.

Algebra Seminar, University of Pennsylvania, Fall 2010.

Colloquium, Cornell University, Fall 2010.

Group Theory/Lie Theory/Number Theory Seminar, University of Michigan, Fall 2010.

Algebraic Geometry Seminar, University of Michigan, Fall 2010.

Number Theory Seminar, University of Illinois at Chicago, Fall 2010.

Algebraic Geometry Seminar, University of Wisconsin-Madison, Fall 2010.

Number Theory Seminar, University of Wisconsin-Madison, Fall 2010.

Quebec-Vermont Number Theory Seminar, McGill University, Fall 2009.

Harvard University Number Theory Seminar, Harvard University, Fall 2009.

Number Theory Seminar, MIT, Fall 2009.

Joint Columbia-CUNY-NYU Number Theory Seminar, New York, Fall 2009.

Complex Analysis and Geometry Seminar, Rutgers University, Fall 2009.

Colloquium, University of Minnesota, Spring 2009.

Number Theory Seminar, University of Wisconsin-Madison, Fall 2008.

Algebraic Geometry Seminar, University of Michigan, Fall 2008.

Princeton University/IAS Number Theory Seminar, Princeton University, Spring 2008.

Seminar on Topics in Arithmetic, Geometry, Etc., MIT, Fall 2007.

Joint Columbia-CUNY-NYU Number Theory Seminar, New York, Fall 2006.