Curriculum Vitae

Personal Data

- **Name** : Stanley Yao Xiao
- **Citizenship** : Canadian
- **Languages** : English, Mandarin, Cantonese, Chinese (written)
- **Email** : syxiao@math.toronto.edu

Employment

- Assistant Professor, Department of Mathematics and Statistics, University of Northern British Columbia (2021-present)
- Postdoctoral Fellow, Department of Mathematics, University of Toronto (2018-2021).
- Research Fellow and NSERC Post-Doctral Fellow, Mathematical Institute, University of Oxford (2016 - 2018).

Education

- PhD in Pure Mathematics. University of Waterloo. (2011 - 2016)

  Advisor: Professor Cameron L. Stewart

  Doctoral Thesis: Some results on binary forms and counting rational points on algebraic varieties

- Master of Mathematics. Pure Mathematics (Thesis based). University of Waterloo. (2010 - 2011)

  Advisor: Professor Cameron L. Stewart

  Masters Thesis: On the Erdős-Turán conjecture and related results.

- (2004 - 2009) University of British Columbia, Honours Bachelors of Science in Mathematics.

Publications

Published

- 2021 *On the representation of k-free integers by binary forms*, joint work with C. L. Stewart, Revista Matematica Iberoamericana (2) **37** (2021), 723-748. DOI: 10.4171/rmi/1213

- 2021 *The number of quartic D_4-fields with monogenic cubic resolvent ordered by conductor*, joint work with C. Tsang, Transactions of the American Mathematical Society (3) **374** (2021), 1987-2033. DOI: 10.1090/tran/8260
- 2020 *On prime values of binary quadratic forms with a thin variable*, joint work with P. C. H. Lam and D. Schindler, Journal of the London Mathematical Society (2) **102** (2020), 749-772. DOI: 10.1112/jlms.12336
- 2020 *Zeroes of polynomials with prime inputs and Schmidt's h-invariant*, joint work with S. Yamagishi, Canadian Journal of Mathematics (3) **72** (2020), 805-833. DOI: 10.4153/S0008414X19000026
- 2019 *On binary quartic forms with bounded invariants and small Galois groups*, joint work with Cindy Tsang, Pacific Journal of Mathematics (1) **302** (2019), 249-291. DOI: 10.2140/pjm.2019.302.249
- 2019 *On binary cubic and quartic forms*, Journal de Théorie des Nombres de Bordeaux, (2) **31** (2019), 323-341. DOI: 10.5802/jtnb.1083
- 2019 *On the representation of integers by binary forms*, with C. L. Stewart, Mathematische Annalen **375** (2019), 133-163. DOI: 10.1007/s00208-019-01855-y
- 2019 *Density of power-free values of polynomials*, with K. Lapkova, Mathematika **65** (2019), 1038-1050. DOI: 10.1112/S0025579319000275
- 2018 *Square-free values of decomposable forms*, Canadian Journal of Mathematics **70** (2018), 1390-1415. DOI: 10.4153/CJM-2017-060-4
- 2017 *Power-free values of binary forms and the global determinant method*, International Mathematics Research Notices, **16** Volume 2017, 5078-5135. DOI: 10.1093/imrn/rnw165

Under revision

- 2021 *On monic abelian cubics*, under revision at Compositio Mathematica. arXiv:1906.08625 [math.NT] (15 pages).

Submitted

- 2020 *Density of power-free values of polynomials II*, with K. Lapkova, submitted to Bulletin of the London Mathematical Society. arXiv:2005.14655 [math.NT] (13 pages).
- 2019 *On the ζ_3-Pell equation*, joint work with E. Knight, submitted to Research in Number Theory. arXiv:1910.14097 [math.NT] (13 pages).
- 2017 *Binary quartic forms with vanishing J-invariant*, submitted to International Mathematics Research Notices, arXiv:1712.09091 [math.NT] (28 pages).

Preprints

- 2020 *The density of rational points on $\mathbb{P}^1$ with three stacky half points*, with B. Nasserden, arXiv:2011.06586 [math.NT] (18 pages).
- 2020 *Binary quadratic forms having discriminants of the form $1-4p$*, with A. B. Miller, arXiv:2011.06559 [math.NT] (18 pages).

Invited Talks

- On monic abelian cubics. Special Session on Analytic Number Theory. AMS Eastern Sectional Meeting. October 2020.
- On the representation of integers by binary forms. Quebec and Vermont Number Theory Seminar. September 2020.
- On monic abelian cubics. Number and Representation Theory Seminar. University of Toronto. September 2020.
- Density of power-free values of polynomials. Number Theory Seminar. University of Waterloo. February 2020.
- Density of power-free values of polynomials. Number Theory and Representation Theory Seminar. University of Toronto. February 2020.
- Uniformity of period mappings. Number and Representation Theory Seminar. University of Toronto. September 2019.
- On monic abelian cubics. Number Theory Seminar. Graz University of Technology. April 2019.
- Binary quartic forms with vanishing J-invariant. Special Session on Arithmetic Statistics at the Joint Mathematics Meetings. January 2019.
- On prime values of binary quadratic forms with a thin variable. Number Theory and Representation Theory Seminar. University of Toronto. September 2018.
- D_4 quartic fields with monogenic cubic resolvent ordered by conductor. Linfoot Seminar. University of Bristol. February 2018.
- Quartic orders of D_4-type with monogenic cubic resolvent. Number Theory Seminar. University of Warwick. November 2017.
- On the representation of k-free integers by binary forms. Number Theory Seminar. Graz University of Technology. October 2017.
- Two parametrizations of binary quartic forms with small Galois group. Number Theory Seminar. Queen's University. July 2017.
- On binary quartic forms with small Galois group. Kobe Number Theory Workshop 2017. June 2017.
- Binary quartic forms with bounded invariants and small Galois group. Number Theory Seminar. University of Toronto. March 2017.
- Counting binary quartic forms with small Galois group. Number Theory Seminar. York University. January 2017.
- Representation of integers by binary forms. University of Utrecht. November 2016.
- Representation of integers by binary forms. Number Theory Seminar. University of Manchester. November 2016.
- On binary cubic and quartic forms. Heilbronn Seminar. University of Bristol. November 2016.
- Representation of integers by binary forms. Number Theory Seminar. University of Oxford. October 2016.
- Representation of integers by binary forms. Number Theory Seminar. University of Waterloo. September 2016.

- k-free values of binary forms. Number Theory Seminar. University of Waterloo. October 2015.
- On the power-free values of polynomials. Number Theory Seminar. Cornell University. May 2014.
- On the power-free values of polynomials. Number Theory Seminar. Fields Institute. February 2014.
- On the determinant method of Heath-Brown and power-free values of binary forms. Number Theory Seminar. University of Waterloo. January 2014.

Service and other activities

I have refereed papers for the following journals:

International Mathematics Research Notices
Proceedings of the London Mathematical Society
Journal de Théorie des Nombres de Bordeaux
Journal of the London Mathematical Society

I have performed the following service activities:

- (2020) Organizer of Number and Representation Theory Seminar - University of Toronto.
- (2019) Organizer of Analytic Number Theory Session - Canadian Mathematical Society Winter Meeting.
- (2017 - Present) Reviewer for Mathematical Reviews, American Mathematical Society.
- (2017 - 2018) Member of the Early Career Researcher Committee, Mathematical Institute, University of Oxford.

Awards and Scholarships

- (2017) Murray Martin Prize (for Best Research Paper by a Mathematics Faculty Graduate Student, University of Waterloo)
- (2016-2018) NSERC Post-Doctoral Fellowship.
- (2015-2016) Ontario Graduate Scholarship.
- (2014) Peter F. Bronfman Graduate Scholarship.
- (2014) Ontario Graduate Scholarship.
- (2014) Winner of the Mathematics Faculty Heat for the Three Minute Thesis Competition.
- (2013) Ontario Graduate Scholarship.
- (2011-2013) Queen Elizabeth II Graduate Scholarship in Science and Technology.
- (2009) UBC Putnam Award (for an honourable mention in the Putnam Competition)

Teaching

- Winter 2021 MAT302 - Introduction to Algebraic Cryptography. University of Toronto Mississauga.
- Fall 2020 MAT 334 - Complex Variables. University of Toronto.
- Summer 2020 MAT 224 - Linear Algebra II for Faculty of Arts and Science. University of Toronto.

- Winter 2020 MAT 136 - Calculus II - Integral Calculus. University of Toronto at Mississauga.
- Fall 2019 MAT223 - Linear Algebra I for Faculty of Arts and Science. University of Toronto.
- Winter 2019 MAT202 - Introduction to Discrete Mathematics. University of Toronto at Mississauga.
- Fall 2018 MAT188 - Linear Algebra for Enginners. University of Toronto.
- Michaelmas 2017 Counting Binary Forms - An Introduction to the Methods of Manjul Bhargava. University of Oxford.
- Winter 2015 PMath 340 - Elementary Number Theory. University of Waterloo.
- Fall 2015 Math 128 - Calculus II for Science Students