

Curriculum Vitae

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Research Interests

- Algebraic geometry: moduli problems, derived categories, stability conditions, Lagrangian fibrations, cubic fourfolds, quiver representations.

Employment

- Postdoctoral Research Associate, 08/2020-07/2024
University of North Carolina at Chapel Hill.
Mentor: Justin Sawon.

Visiting appointments

- Guest Researcher, 09/2023-12/2023
Hausdorff Research Institute for Mathematics, Bonn.
Junior Trimester Program on Algebraic geometry: derived categories, Hodge theory, and Chow groups.

Education

- PhD in Mathematics, 08/2013-07/2020
Indiana University Bloomington.
Advisor: Valery Lunts.
- BSc in Mathematics, 08/2009-05/2013
Chinese University of Hong Kong.

Publications

1. *Birational geometry of Beauville-Mukai systems I: the rank three and genus two case*, with Justin Sawon, *Mathematische Zeitschrift*, DOI: 10.1007/s00209-023-03353-z.
2. *Bridgeland stability of minimal instanton bundles on Fano threefolds*, *Journal of the Mathematical Society of Japan*, DOI: 10.2969/jmsj/89238923, 2023.
3. *Compactification of the moduli space of minimal instantons on the Fano threefold V_4* , *European Journal of Mathematics*, **7**, 1502 – 1523, 2021.

4. *Compactification of the moduli space of minimal instantons on the Fano 3-fold V_5* , Journal of Pure and Applied Algebra, DOI: 10.1016/j.jpaa.2020.106526, 2021.

Preprints

1. *Compactifying the Space of Stability Conditions*, with C. Dare, B. Farman, L. Marquand, E. Macrì, T. Peng, L. Pertusi, , N. Rekuski, F. Rota, in preparation.
2. *Toward a classification of $(1, 2)$ -polarized Lagrangian fibrations*, with Justin Sawon, in preparation.
3. *Birational geometry of Beauville-Mukai systems III: asymptotic behavior*, with Justin Sawon, arXiv:2210.03095, submitted.
4. *Birational geometry of Beauville-Mukai systems II: general theory in low ranks*, with Justin Sawon, arXiv:2207.12608, submitted.
5. *Moduli of quiver representations for exceptional collections on surfaces*, with Shizhuo Zhang, arXiv:1803.06533, submitted.
6. *Blow ups of \mathbf{P}^n as quiver moduli for exceptional collections*, arXiv: 1804.09544.

Invited Talks

- *Birational geometry of Beauville-Mukai systems on K3 surfaces*, MSRC, Chongqing University of Technology, Aug 2023.
- *Birational geometry of Beauville-Mukai systems on K3 surfaces*, AMS 2022 Fall Southeastern Sectional Meeting, University of Tennessee at Chattanooga, Oct 2022.
- *Birational geometry of the Mukai system on a K3 surface*, Binghamton Arithmetic Seminar, Binghamton University, Apr 2022.
- *Compactification of the moduli space of minimal instantons on the Fano threefold V_4* , Geometric Methods in Representation Theory Seminar, UNC Chapel Hill, Nov 2021.
- *Compactification of the moduli space of minimal instantons on the Fano threefold V_4* , online Seminar, Chongqing University of Technology, July 2021.
- *Compactification of the moduli space of minimal instantons on the Fano threefold V_4* , Campinas Algebraic Geometry Summer Meeting (Bandoleros), UNICAMP, Campinas, Feb 2021.
- *Moduli spaces of quiver representations for exceptional collections on surfaces*, Algebra Seminar, Indiana University, Feb 2018.

Professional Service

- Co-organizer, School on K3 surfaces, hyperkähler manifolds, and cubic fourfolds, Hausdorff Research Institute for Mathematics, Bonn, 2023.

- Co-organizer, STReTCH learning seminar (Selected Topics RElating To Cubics and Hyperkählers), Hausdorff Research Institute for Mathematics, Bonn, 2023.

Recent Conferences and Workshops

- International Summer School of Algebraic Geometry, Fudan University, 2023.
- Derived Categories, Moduli Spaces, and Counting Invariants, Imperial College London, 2023.
- MRC Conference "Derived categories, Arithmetic and Geometry", Buffalo, NY, 2022.
- AMS Fall Southeast Sectional Meeting, U Tennessee at Chattanooga, 2022.
- Derived Categories, Moduli Spaces, and Hyperkähler Varieties, UMich, 2022.
- Derived Categories and Moduli Spaces, Cornell University, 2022.
- Campinas Algebraic Geometry Summer Meeting (Bandoleros), UNICAMP, Campinas, 2021.

Teaching Record

University of North Carolina at Chapel Hill:

- MATH318 Discrete Mathematics, Spring 2023.
- MATH231H Calculus of Functions of One Variable, Honors section, Spring 2023.
- MATH231H Calculus of Functions of One Variable, Honors section, Fall 2022.
- MATH233H Calculus of Functions of Several Variables, Honors section, Spring 2022.
- MATH318 Discrete Mathematics, Spring 2022.
- MATH318 Discrete Mathematics, Fall 2021.
- MATH318 Discrete Mathematics, Spring 2021.
- MATH318H Discrete Mathematics, Honors section, Fall 2020.

Indiana University:

- V119 Applied Brief Calculus, Spring 2020.
- V119 Applied Brief Calculus, Fall 2019.
- M118 Finite Math, Summer 2017.

Journal Refereeing: Forum Mathematicum, Manuscripta Mathematica

Mentoring (REU)

- William Hargis, Fall 2016. Topic: Introduction to representation theory.