

Jiahao Hu

Education

2017-	Ph.D. in Math	Stony Brook University. Advisor: Dennis Sullivan.
2013-2017	B.Sc. in Math	University of Science and Technology of China.

Research Interest

Algebraic topology and its applications to differential and algebraic geometry.

Publications

1. J. Hu (2023a). Almost complex manifolds with total Betti number three. *Journal of Topology and Analysis*.
2. S. Auyeung, J.-C. Guu, and J. Hu (2023). On the algebra generated by $\bar{\mu}, \bar{\partial}, \partial, \mu$. *Complex Manifolds* **10**(1), 20220149.
3. J. Hu and A. Milivojević (2022). Infinite symmetric products of rational algebras and spaces. *Comptes Rendus. Mathématique* **360**, 275–284.

Preprints

1. J. Hu (2023b). “Invariants of real vector bundles”. PhD thesis. arXiv: [2310.05061](#).
2. J. Hu (2022). *Characterization of differential K-theory by hexagon diagram*. arXiv: [2209.04925](#). Submitted to Journal of Topology.

Invited Talks

2024 Feb	Princeton University. Algebraic Topology Seminar. <i>Upcoming</i> .
2023 May	University of Oregon. Topology/Geometry Zoom Seminar. <i>Algebraic properties of the four components of the exterior differential d on almost complex manifolds</i> .
2023 Mar	King’s College London and University College London. Junior Geometry Seminar. <i>Algebraic properties of differential operators on almost complex manifolds</i> .
2023 Feb	City University of New York. Differential Geometry, Topology, and Special Structures Seminar. <i>Differential K-theory and its topology</i> .
2022 Sep	City University of New York. Differential Geometry, Topology, and Special Structures Seminar. <i>The four components of d on almost complex manifolds</i> .
2022 Mar	University of Oregon. Topology/Geometry Zoom Seminar. <i>Quaternionic Clifford modules, $spin^h$ manifolds and symplectic K-theory</i> .
2020 Feb	University of Pennsylvania. Deformation Theory Seminar. <i>Topological resolution of singularities</i> .
2019 Dec	University of Science and Technology of China. <i>Topological resolution of singularities</i> .
2019 Nov	City University of New York. Topology, Geometry and Physics Seminar. <i>Topological resolution of singularities</i> .

Teaching

2023	MAT531-Topology, Geometry II. Grader. MAT525-Abstract Algebra II. Grader.
2021	MAT312-Applied Algebra. TA. MAT313-Abstract Algebra. Grader.
2020	MAT341-Applied Real Analysis. Grader. MAT132-Calculus II (online via Zoom). Instructor. MAT533-Real Analysis II. Grader MAT362-Differential Geometry of Surfaces. Grader.
2019	MAT125-Calculus A. TA. MAT132-Calculus II. Instructor. MAT123-Precalculus. TA.
2018	MAT126-Calculus B. TA. MAT132-Calculus II. Instructor. MAT127-Calculus C. TA.
2017	MAT211-Introduction to Linear Algebra. Grader.

Outreaching and services

Mentoring

- Mentored Matthew Giacobelli under the Directed Reading Program at Stony Brook University in fall 2020. Topic: Topology from differentiable viewpoint.
- Mentored Brandon Gontmacher under the Directed Reading Program at Stony Brook University in fall 2019. Topic: A First Course in Modular forms.

Co-organizing

- Organized Student Topology Seminar at Stony Brook University in spring 2020. Topic: Elliptic cohomology and elliptic genera.
- Co-organized RTG Seminar at Stony Brook University in 2019-2020 academic year. Topics: Modular forms. Homological mirror symmetry.
- Co-organized Graduate Student Seminar at Stony Brook University in 2018-2019 academic year.