

# Renjie Lyu

School of Mathematical Sciences,  
Xiamen University,  
No. 422, Siming South Road, 物理机电大楼  
R620,  
361005, Xiamen.

Email: [r.lyu@xmu.edu.cn](mailto:r.lyu@xmu.edu.cn)  
Personal website: <https://renjielyu91.github.io/>  
Profile:

I am a tenure-track assistant professor at School of Mathematical Sciences, Xiamen University. Previously, I was a postdoc at Morningside Center of Mathematics, CAS. I received my Ph.D. at University of Amsterdam, under the supervision of Mingmin Shen.

I work in algebraic geometry, mainly interested in studying algebraic varieties by Hodge theory. My research includes weak Torelli theorem, Chow groups of cubic hypersurface and related hyper-Kähler variety, and degeneration of Hodge structures.

## Employment

---

- Sep 2023–. Assistant Professor, School of Mathematical Sciences, Xiamen University
- Oct 2020-Aug 2023, Postdoc, Morningside Center of Mathematics, Chinese Academy of Science, Mentor: Baohua Fu.

## Experience

---

- Sep 2016-Oct 2020, Ph. D. Mathematics, University of Amsterdam.  
Supervisor: Shen, Mingmin,
- Aug 2014-May 2016, M. A. Mathematics, Washington University in St. Louis.
- Sep 2010-July 2014, B. S. Mathematics, Zhejiang University.

## Research Preprints

---

- *Degeneration to secant cubic hypersurfaces and limiting Hodge structure*, joint with Zhiwei Zheng, [arXiv: 2206.12670](#), submitted.
- *Lines on secant cubic hypersurfaces of Severi variety*, [arXiv: 2112.00335](#), submitted.
- *Algebraic cycles on cubic hypersurfaces and Fano scheme of lines*, [Thesis](#).
- *Universal generation of the cylinder homomorphism of cubic hypersurfaces*, [arXiv: 1810.12394](#).
- *Remarks on automorphism and cohomology of finite cyclic coverings of projective spaces*, joint with Xuanyu Pan, *Math. Res. Lett.* vol. 28(2021), no. 3, 785-822.

## Invited Talks

---

- *Degeneration of Hodge structures and cubic hypersurfaces*, Purdue Algebraic Geometry Seminar (online), Purdue University, Sep. 2023.
- *Degeneration of Hodge structures and cubic hypersurfaces*, Moduli Spaces and Related Topics, YMSC, Tsinghua University, June 2023.
- *Generic Triviality of automorphisms on algebraic varieties*, Xiamen University, June 2023.
- *Degeneration of Hodge structures and cubic hypersurfaces*, 同济大学数学科学学院国际青年学者论坛, Jan. 2023.
- *Degeneration of Hodge structures and cubic hypersurfaces*, The 2nd Global Youth Forum, Institute of Geometry and Physics, USTC, Dec. 2022.
- *Degeneration of cubic hypersurfaces and limiting Hodge structure*, Shanghai Jiao Tong University, Aug. 2022, online.
- *Degeneration of cubic hypersurfaces and limiting Hodge structure*, 3rd National Algebraic Geometry Conference, Fudan University, July 2022, online.
- *Lines on the secant cubic hypersurfaces of Severi varieties*, MCM Members Seminar, CAS, Nov. 2021.
- *Cubic hypersurfaces: Chow groups, motives and rationality problems*, MCM Members Seminar, CAS, Dec. 2020.
- *The automorphism and cohomology of cyclic coverings*, Séminaire Géométrie de l'ICJ, Université Claude Bernard Lyon 1, May 2019.
- *A result of algebraic cycles on cubic hypersurfaces*, Rationality of Algebraic Varieties, Schiermonnikoog Island, Apr. 2019.
- *A result of algebraic cycles on cubic hypersurfaces*, Algebraic and Arithmetic Seminar, University of Amsterdam, Feb. 2019.
- *A result of algebraic cycles on cubic hypersurfaces*, Forschungsseminar "Arithmetische Geometrie", Humboldt University, Jan. 2019.
- *A result of algebraic cycles on cubic hypersurfaces*, Algebraic Geometry Seminar, Chinese Academy of Science, Dec. 2018.
- *Chow rings of hyper-Kähler manifolds*, GAeL XXV, University of Bath, June 2017.

## Honors and Awards

---

- S.-T. Yau College Student Mathematics Contest 2013, Geometry and Topology, Bronze Medal.

## Seminar Talks

---

- *Characterization cubic hypersurfaces in projective geometry*, preprint seminar, MCM, Mar 2022.
- *Degeneration of Hodge structures*, preprint seminar, MCM, Nov 2021.
- *Lagrangian fibration on irreducible symplectic manifolds*, Lagrangian Fibration Seminar, MCM, Mar 2021.
- *Fano variety of lines on cubic fourfolds*, Reading Seminar on Cubic Hypersurfaces, MCM, Jan 2021.
- *Fqpc sites: descent theory*, Étale Cohomology Seminar, University of Amsterdam, Sep 2019.
- *Bounding the trace of monodromy representations*, Reading Seminar on Finiteness of Monodromy Representation, University of Amsterdam, Nov 2018.
- *Deligne-Mumford stacks*, Moduli Stacks Seminar, Utrecht, Oct 2017.
- *Isogenous of  $K_3$  surfaces are twisted derived equivalent*, Algebraic and Arithmetic Seminar, University of Amsterdam, Sep 2017.
- *Tate modules and fundamental groups of abelian varieties*, Abelian Varieties Seminar, Feb 2017.
- *Basics of abelian varieties*, Abelian Varieties Seminar, Oct 2016.

## Seminar (co)Organized

---

- Lagrangian Filtration and Hyper-Kähler variety, MCM, Spring 2021.
- Seminar on Good Reduction of Abelian Varieties, University of Amsterdam, Fall 2016.

## Teaching Experience

---

### Teaching Assistants

- Differential Geometry, Fall 2019.
- Abelian Variety, Fall 2018.
- Algebra 2, Fall 2018.
- Topology, Spring 2018.
- Algebraic geometry 1, Fall 2017.
- Topology, Spring 2017.
- Representation Theory, Fall 2016.
- Introduction to Lebesgue Integration, Spring 2016.
- Complex Analysis II, Spring 2016.
- Complex Variables, Fall 2015.
- Geometry I, Fall 2015.
- Complex Analysis I, Fall 2015.