

## Thomas Jiang

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[tsjiang02.github.io](https://tsjiang02.github.io)

Department of Mathematics,

Duke University,

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## Research Interests

Differential geometry, geometric analysis (geometric measure theory, Riemannian convergence theory), special holonomy metrics ( $G_2$ ,  $\text{Spin}(7)$ , Calabi-Yau, hyper-Kähler, etc.), gauge theory.

## Education

### Duke University

PhD, 2023--

Advisor: Mark Haskins

### Stony Brook University

Honors B.S., Mathematics, GPA: 3.97/4.00, *summa cum laude*, 2020-2023

Thesis: "The Kummer Construction of Ricci-flat Kähler Metrics on  $K3$  via Weighted Analysis", url:

[tsjiang02.github.io/papers.html](https://tsjiang02.github.io/papers.html)

Advisor: Simon Donaldson

## Research Experience

Current work: constructing new complete non-compact torsion-free  $G_2$  manifolds with full holonomy  $G_2$ .

Past work: reproved a conjecture of physicists Page and Gibbons and Pope on the construction of Ricci-flat Kähler metrics on the  $K3$  surface using modern weighted analysis/singular perturbation theory.

## Publications

### Preprints

- P1. Jiang, T. *The Kummer Construction of Calabi-Yau and Hyper-Kähler Metrics on the  $K3$  Surface, and Large Families of Volume Non-collapsed Limiting Compact Hyper-Kähler Orbifolds* 2024. arXiv: [2501.08491](https://arxiv.org/abs/2501.08491) [math.DG].

### Talks

*Geometric Analysis Learning Seminar*, November 9th 2022

"Connections with  $L^p$ -bounds on curvature"

## Awards & Honors

### Michael and Jane Fasullo Scholarship in Math

Stony Brook University College of Arts and Sciences, 2021-2022

### Kuga-Sah Memorial Award: Freshman (math department award for best freshman)

Stony Brook University Department of Mathematics 2020-2021

### Kuga-Sah Memorial Award: Sophomore (math department award for best sophomore)

Stony Brook University Department of Mathematics 2021-2022

### Stony Brook Foundation Award for Excellence in Mathematics

(math department award for best undergraduate)

Stony Brook University Department of Mathematics 2022-2023

## Conferences Attended

SLMath Geometry and analysis of special structures on manifolds, November 18th-22nd, 2024

SLMath summer school on geometric analysis, June 16-29th, 2024

SCSHGAP meeting, May 13-17th, 2024

Simons/IMPA workshop, March 11-15th, 2024

SCSHGAP meeting, September 7-13th, 2023

PCMI 2019 Graduate Summer School, June 30-July 20th, 2019

## Languages and Skills

English (native), Mandarin (conversational)

LaTeX

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Last updated: January 15, 2025