Hyun Chul Jang

Department of Mathematics, Texas State University hcjang@txstate.edu My Website

Research Interests

Differential Geometry, Mathematical Relativity

Employment

Texas State University — San Marcos, TX
Assistant Professor of Instruction — Sep 2026 - Present
Lecturer — Aug 2025 - Aug 2026

California Institute of Technology — Pasadena, CA
Harry Bateman Postdoctoral Scholar Teaching Fellow — Aug 2022 – Aug 2025
Mentor: Prof. Antoine Song

University of Miami — Coral Gables, FL
Fuqua Research Assistant Professor — Aug 2020 – July 2022
Mentors: Profs. Gregory Galloway and Pengzi Miao

Education

Ph.D. **University of Connecticut, CT, United States**, Mathematics — Aug 2015 – May 2020
Thesis title: *Topics on Asymptotically hyperbolic manifolds in General Relativity*
Advisor: Prof. Lan-Hsuan Huang

M.Sc. **Sogang University, Seoul, Korea**, Mathematics — Mar 2013 – Feb 2015
Thesis title: *On the metric of a surface which maximizes the eigenvalue*
Advisor: Prof. Pak Tung Ho

B.Sc. **Sogang University, Seoul, Korea**, Mathematics — Mar 2006 – Feb 2013

Preprints

A spacetime positive mass theorem with corners via mollification — Preprint. arXiv:2607.19320
Hyun Chul Jang, Aidan F. Wood

Deterministic–Distance Couplings of Brownian Motions on Radially Isoparametric Manifolds — Preprint. arXiv:2511.04431
Geonhee Cho, ***Hyun Chul Jang***, Taeik Kim

Publications

Entropy stability for products of negatively curved symmetric spaces — arXiv:2410.10982
Hyun Chul Jang
To appear in Comm. Anal. Geom.

Rigidity of Asymptotically Hyperboloidal Initial Data Sets with Vanishing Mass — arXiv:2411.07357
Sven Hirsch, ***Hyun Chul Jang***, Yiyue Zhang
Comm. Math. Phys. **406**, 307 (2025)

Hyperbolic Mass via Horospheres — arXiv:2102.01036
Hyun Chul Jang, Pengzi Miao
Commun. Contemp. Math. **25** (2023), no. 8, Paper No. 2250023, 22 pp.

Scalar curvature deformation and mass rigidity for ALH manifolds with boundary arXiv:2108.12887
Lan-Hsuan Huang, ***Hyun Chul Jang***
Trans. Amer. Math. Soc. **375** (2022), no. 11, 8151-8191

Some scalar curvature warped product splitting theorems arXiv:1907.09396
Gregory J. Galloway, ***Hyun Chul Jang***
Proc. Amer. Math. Soc. **148** (2020), no. 6, 2617-2629

Mass rigidity for hyperbolic manifolds arXiv:1904.12010
Lan-Hsuan Huang, ***Hyun Chul Jang***, Daniel Martin
Comm. Math. Phys. **376** (2020), no. 3, 2329-2349

Asymptotically hyperbolic 3-metrics with Ricci flow foliation arXiv:1802.01019
Hyun Chul Jang
Ann. Henri Poincaré **20** (2019), no. 3, 797-811.

Awards and Honors

The Michael Neumann Dissertation Award, University of Connecticut	Spring 2020
Doctoral Dissertation Fellowship, University of Connecticut	Spring 2020
Predoctoral Dissertation Fellowship, University of Connecticut	Spring 2019
Provost Excellence in Teaching, University of Connecticut	Fall 2018, Fall 2019
Doctoral Student Travel Award, University of Connecticut	Spring 2018
Graduate Fellowship in Mathematics, University of Connecticut	Summer 2016
Scholarship of Academic Achievement, Sogang University	2011-2012
Dean's List of the School of Natural Sciences, Sogang University	2011-2012

Teaching Experience

Texas State University
- MATH 2472 Calculus II
- MATH 3376 Applied Linear Algebra

California Institute of Technology
- Math 157a Riemannian Geometry (Graduate course)
- Math 157b Geometric Analysis (Graduate course)
- Math 109b Introduction to Geometry and Topology (Differential Geometry of Curves and Surfaces)
- Math 191a: Selected Topics in Mathematics (Graduate course - Geometric Relativity)
- Math 109a Introduction to Geometry and Topology (Point-Set topology, Fundamental Groups, Homology)

SLMath/MSRI Summer Graduate Schools
- TA for "Topics in Geometric Flows and Minimal Surfaces" in Summer 2023

University of Miami
- MTH210 Introduction to Linear Algebra
- MTH311 Introduction to Ordinary Differential Equations

University of Connecticut (Graduate Teaching Assistant)
- Primary Instructor for Elementary Differential Equations
- TA for Multivariable Calculus, Calculus I Honors, Calculus II

Selected Invited Talks

Geometric Analysis Seminar, University of Chicago, Chicago, IL	Apr 2024
Geometric Analysis Seminar, McGill University, Montreal, Canada	Mar 2024

2024 Meeting on Analysis and Noncommutative Geometry for Early Career Researchers, Caltech, Pasadena, CA	Mar 2024
Workshop on Scalar Curvature, Minimal Surfaces, and Initial data sets, Harvard CMSA, Cambridge, MA	May 2022
Differential Geometry Seminar, University of California, Santa Barbara, CA	Nov 2021
Geometry Seminar, KIAS, Seoul, Korea	Jul 2021
Geometric Analysis and Mathematical Relativity Research Seminar, University of Tübingen, Tübingen, Germany	Jul 2021
Duke Geometric Analysis and Mathematical Relativity Seminar, Duke University, Durham, NC	Feb 2021

Academic Service

Session Leader, Calculus II Bootcamps, Texas State University	Aug 2025 - Dec 2025
Organizer of *the Geometry and Topology seminar at Caltech*	2023-2024
Referee/reviewer for *Journal of Differential Geometry, Journal of Geometric Analysis, Journal of Mathematical Physics, Letters in Mathematical Physics, Pacific Journal of Mathematics*, and MathSciNet	2020-2025