2025.10.24~26 学术报告摘要

The optimal quadratic estimate for the cone-volume measure of antipodal points and its applications

报告人：熊革（同济大学）

报告摘要：The optimal quadratic estimate for the cone-volume measure of antipodal points of convex bodies in **R**^n is obtained. As effective applications of this estimate, we establish the strong Minkowski and Brunn-Minkowski inequalities in **R**^n. This talk is based on the joint work with Yu-De Liu and Kai-Wen Yang.

报告人简介：熊革，同济大学长聘教授。主要研究凸几何、积分几何。在凸体几何领域解决 Lutwak-Yang-Zhang 猜想空间维数 n=2, 3 的情形，建立 Orlicz-John 椭球理论，完全解决了 **R**^3 中体积分解泛函的极值问题。相关成果发表于 Advances in Mathematics、Journal of Differential Geometry、Calculus of Variations and PDEs、Communications in Analysis and Geometry 等期刊。

Rigidity and classifications on harmonic Ricci flows

报告人：陈群（武汉大学）

报告摘要：Harmonic Ricci flow (HRF) is a class of coupled system of harmonic map heat flow and Ricci flow. We will present recent results on the rigidity of periodic solutions of HRF and classification results on soliton solutions of HRF. This is based on joint works with Jiarui Chen and Xuliang Luo.

报告人简介：陈群，武汉大学二级教授、“珞珈杰出学者”。 主要研究方向为微分几何、几何分析。在 J. Euro. Math. Soc.、Adv. Math.、Amer. J. Math.、Calc. Var. & P.D.E.、Math. Zeit. 等期刊发表了关于狄拉克-调和映照、广义调和映照、狄拉克算子与狄拉克方程、广义最大值原理、子流形几何、Yang-Mills 场等方面的系列研究论文。

椭圆偏微分方程的向量场方法介绍

报告人：麻希南（中国科学技术大学）

报告摘要：椭圆偏微分方程先验估计的一个有力工具是能量法，从另一方面讲它就是向量场办法。受到 Bochner 技巧或 Obata 方法等几何问题研究的启发，从 1970 年代开始椭圆偏微分方程的向量场方法在各种方程获得应用，如 Gidas-Spruck 与 Serrin-Zou 等在二阶椭圆方程上的应用。受到与四阶椭圆算子有关的几何问题和技术启发，我们在一类四阶椭圆方程中发展相关的向量场方法。我将在本报告中介绍其思想与最近的应用，它是与吴天，吴汪哲，周晓的合作结果。

报告人简介：麻希南，中国科学技术大学教授、博士生导师，曾任学院副院长，兼任中法数学中心常务副主任，主持国家杰出青年科学基金等国家级科研项目，入选教育部新世纪人才、中科院百人计划。学术方向聚焦于 k-Hessian 方程、最优传输问题及复几何方程，在 Christoffel-Minkowski 问题凸解存在性证明、Folland-Stein-Sobolev 不等式最优常数等领域取得突破性成果，相关论文发表于 Inventiones Mathematicae 等国际权威期刊。

The long-time behavior of curvature flows in the plane

报告人：王小六（东南大学）

报告摘要：In this talk, we will investigate recent progress on the study of planar curve flows, including the topics such as anisotropic curvature flows with constant forcing terms or nonlocal forcing terms. We mainly focus on the classification and characterization of the long-time evolution behavior of curvature flows.

报告人简介：王小六，东南大学数学学院教授、博士生导师，现任该院副院长。研究方向为偏微分方程与几何分析，主要研究曲率流及相关抛物型方程问题，在 Calc. Var. PDE、J. Differential Equations、J. Funct. Anal.、Math. Z.、SIAM J. Math. Anal. 等期刊上发表学术论文 30 余篇。

Spectral isoperimetric inequalities for Robin Laplacians on Riemannian manifolds

报告人：陈大广（清华大学）

报告摘要： In this talk, we will report the recent progress of spectral isoperimetric inequalities for Robin Laplacian on bounded domain in Riemannian manifolds with positive and negative parameters.

报告人简介：陈大广，清华大学数学科学系副教授、博士生导师。研究的主要领域是流形上椭圆算子的特征值问题，其主要研究结果发表在 Comm. Math. Phys.、Calc. Var. Partial Differential Equations、Math. Z.、J. Differential Equations、J. Geom. Anal.、J. Math. Phys.、J. Math. Soc. Japan 等杂志上。

Volume preserving Gauss curvature flow in hyperbolic space

报告人：韦勇（中国科学技术大学）

报告摘要：We study the volume-preserving flow of smooth, closed, and convex hypersurfaces in hyperbolic space with the speed given by arbitrary positive power of the Gauss curvature. We prove that if the initial hypersurface is convex, the solution remains convex and exists for all positive times. Furthermore, by applying a result of Kohlmann—which characterizes geodesic balls in terms of hyperbolic curvature measures—we show that the flow converges smoothly to a geodesic sphere. This presents the first result for (globally constrained) volume-preserving curvature flows in hyperbolic space that only requires initial convexity. This is joint work with Bo Yang (Tsinghua University) and Tailong Zhou (Sichuan University).

报告人简介：韦勇，中国科学技术大学数学科学学院特任教授。2014 年从清华大学博士毕业。2014 - 2018 先后在英国伦敦大学学院和澳大利亚国立大学做博士后研究。2019-2020 任澳大利亚国立大学 ARC 研究员。2020 年获国家创新人才计划青年项目回国入职中国科学技术大学。研究方向是微分几何，几何分析。研究课题包括 7 维流形上 G2 结构的几何流，超曲面上的曲率流及几何不等式。相关成果发表于 Math. Ann.、Trans. AMS、Advances in Math.、J. Differential Geom 与 Geom. Funct. Anal.等杂志上。

Geometry on the finite time singularity along the continuity method

报告人：张雷（清华大学）

报告摘要： In this talk, we will concern about a class of finite time singularities along continuity equation over a compact Kahler manifold. For the collapsing case, we prove that the Gromov-Hausdorff limit is unique under the assumption of the Kahler class. Furthermore, we can obtain that the limit space is homeomorphic to a manifold when Ricci curvature of limit metric is bounded from below on the regular part. For the noncollapsing case, it is showed that its Gromov-Hausdorff limit is isometric to the completion of ample locus of limit class with respect to limit metric. Furthermore, we can obtain the regular part of the limit space is geodesically convex and every tangent cone of the limit space is homeomorphic to a normal affine algebraic variety. This talk based on a joint work with my advisor Prof. Zhenlei Zhang.

报告人简介：张雷，博士毕业于首都师范大学，导师为张振雷教授。目前在清华大学丘成桐数学科学中心从事博士后研究，合作导师为丘成桐教授。

Evolution problem and entropy inequalities

报告人：张彦龙（河南科学院数学研究所）

报告摘要： In this talk, we describe two anisotropic area-preserving flows for plane curves, both of which are considered to deform one convex curve into another. Different monotonic entropy functions are identified under these flows, which can be utilized to re-proof two significant entropy inequalities: the log-Minkowski inequality and the curvature entropy inequality.

报告人简介：张彦龙，河南省科学院数学研究所助理研究员。博士毕业于同济大学，曾在南开大学陈省身数学研究所从事博士后研究工作。研究方向为几何分析，主要是平面曲线的演化及相关不等式研究，在 J. Differential Equations、Nonlinear Anal.、Math. Res. Lett.等学术期刊上发表论文多篇。