

2023年度浙大数学中心学术年会

时 间: 2024年2月5日
地 点: 数学中心407
腾讯会议: 747-380-202
密 码: 5508

2月5日 上午

时 间: 09:00—09:40

报告人: 徐浩

题 目: Asymptotics of Bergman kernel and heat kernel

摘 要: The asymptotic expansion of heat kernel and Bergman kernel on Kahler manifolds have important geometric applications. We will talk about some interesting physical interpretation of this expansion, e.g., quantum Hall effect and deformation quantization. Some work joint with Prof. Kefeng Liu.

时 间: 09:40—10:20

报告人: 夏天澄

题 目: Heat kernel and q -Hamiltonian reduced space

摘 要: In this talk, the heat kernel method is applied to the q -Hamiltonian G -space, which is a generalization of Hamiltonian G -space. Then we derive the symplectic volume formula and a certain class of intersection number on its reduced space, which related to the curvature.

时 间: 10:40—11:20

报告人: 李世阳

题 目: The smooth convergence of mean curvature flows in space forms

摘 要: We study the stability of the volume preserving mean curvature flow of closed hypersurfaces in the hyperbolic space. We prove that an L^2 -almost umbilical hypersurface will be deformed to a totally umbilical hypersurface along the flow. Our result removes the assumption on the mean curvature in the theorems of Huang-Lin-Zhang [Peking J. Math. (2023)] and Leng-Xu-Zhao [Int. J. Math. (2014)]. Besides, we investigate the smooth convergence of the mean curvature flow of hypersurfaces in the quaternionic projective space. We prove that if the initial hypersurface satisfies a new nonlinear curvature pinching condition, then the flow converges smoothly to a round point in finite time. Our result improves a smooth convergence theorem due to Pipoli-Sinestrari [Comm. Anal. Geom. (2017)].

时 间: 11:20—12:00

报告人: 黄轩宇

题 目: Intersection theory on moduli space

摘要: In this talk, we will give an overview of the intersection theory of moduli space of curves and of moduli space of quadratic differential forms. First, we will review the classic intersection theory and recursion formulas of intersection numbers. Second, we will explain its application in Weil-Petersson geometry and Masur-Veech geometry. In particular, we will focus on two volume asymptotic conjecture.

2月5日 下午

时间: 14:00—14:40

报告人: 赵恩涛

题目: Convergence theorems for mean curvature flow of arbitrary codimension

摘要: In this talk, I will report some results on the smooth convergence of the mean curvature flow of arbitrary codimension. We will show that if the initial submanifold satisfies certain curvature pinching condition, then the mean curvature flow converges to a round point or a totally geodesic submanifold. This talk is based on the joint works with Prof. Kefeng Liu and Prof. Hongwei Xu.

时间: 14:40—15:20

报告人: 智艳辉

题目: The Ehrhart Theory

摘要: The Ehrhart polynomial L_P of an integral polytope P counts the number of integer points in the integral dilates of P . Afandi discover that tautological intersection numbers on $\overline{M}_{g,n}$, the moduli space of stable genus g curves with n marked points can be arranged into families of Ehrhart polynomial, $\{L_{\vec{d}}\}$, for partial polytopal complexes. Afandi also applies a theorem of Breuer that classifies Ehrhart polynomials of partial polytopal complexes by the nonnegativity of their f^* -vector.

时间: 15:40—16:20

报告人: 李娟

题目: Convexity estimates for high codimension mean curvature flow in Riemannian manifolds

摘要: We focuses on the first eigenvalue of the second fundamental form in the principal mean curvature direction and demonstrate that a quadratically pinched mean curvature flow exhibits asymptotic convexity that is quantifiable. In particular, we provide proof of a theorem that generalizes the convexity estimate of Huisken-Sinestrari to Riemannian background spaces.

时间: 16:20—17:00

报告人: 许洪伟

题目: New developments in global differential geometry and geometric analysis

摘要: In this lecture, we mainly discuss some problems in global differential geometry and geometric analysis. In particular, we proved the following theorems: (1) a mean value theorem for critical points of height functions of isometric immersion from closed Riemannian manifolds to R^{n+p} , which gives a unified version of the Gauss-Bonnet-Chern theorem, the Chern-Lashof theorem and the Chen-Willmore inequality; (2) an optimal convergence theorem for higher codimensional mean curvature flow with positive Ricci curvature in hyperbolic space. Contrast to the famous sphere theorems due to Perelman and Cheeger-Colding, our result implies the first optimal differentiable sphere theorem for submanifolds with positive Ricci curvature; (3) a generalized Li-Yau inequality for minimal submanifolds in Cartan-Hadamard manifolds with arbitrary codimension, which provides a strong evidence for that the generalized Pólya conjecture is true.