2022几何与分析青年研讨会

会议程序册

上海大学

Shanghai University

2022 年 11 月 18 日 — 2022 年 11 月 20 日

为促进几何与分析领域内的相互学习与交流，我们特别组织筹办了这次专题会议。

本次的会议地点为**上海衡山北郊宾馆**，具体地址是：上海市宝山区沪太路 4788 号。出行建议：打车请说明到**衡山北郊宾馆**，地铁请选择地铁 **7 号线顾村公园站,步行 1.9 公里（28 分钟）**。

会议报告人（拼音序）

陈小杨	同济大学
黄耿耿	复旦大学
刘　博	华东师范大学
刘　钢	华东师范大学
王常亮	同济大学
吴　鹏	同济大学
熊　革	同济大学

组委会（拼音序）

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会议日程

2022 年 11 月 18 日（星期五）	
全天	报到注册

2022 年 11 月 19 日（星期六）宝山厅			
上午			
报告时间	报告人	报告题目	主持人
8:50-9:00	开幕式		
9:00-9:50	刘　博	Index theorem with boundary	李晋
9:50-10:10	茶歇		
10:10-11:00	陈小杨	New Bochner type theorems	张德凯
11:10-12:00	黄耿耿	The Guillemin boundary problem for Monge-Ampére equation in the polygon	
12:00-14:00	午餐及休息		
下午			
14:00-14:50	刘　钢	Quantitative analysis on complete Kahler manifolds with nonnegative bisectional curvature	席东盟
14:50-17:30	会议照、自由讨论		
17:30-22:00	晚餐		

2022 年 11 月 20 日（星期日）宝山厅			
上午			
报告时间	报告人	报告题目	主持人
9:00-9:50	吴　鹏	Complex structures on Einstein four-manifolds of positive scalar curvature	吴加勇
9:50-10:10	茶歇		
10:10-11:00	王常亮	The linear instability of some families of Einstein metrics	吴尉迟
11:10-12:00	熊　革	The Lp John ellipsoids for negative index	
12:00-14:00	午餐及休息		
下午			
14:00-17:30	自由讨论		
17:30-22:00	晚餐、离会		

报告题目和摘要

New Bochner type theorems

陈小杨

同济大学

A classical theorem of Bochner asserts that the isometry group of a compact Riemannian manifold with negative Ricci curvature is finite. In this talk we discuss several extensions of Bochner's theorem.

The Guillemin boundary problem for Monge-Ampére equation in the polygon

黄耿耿

复旦大学

In this talk, we will talk about the existence of solutions for the two dimensional Monge-Ampére equation in the polygons with Guillemin boundary condition.

Index theorem with boundary

刘博

华东师范大学

Abstract: In 1975, Atiyah-Patodi-Singer established the index theorem for manifold with boundary. The general family extension of the APS index theorem was given by Melrose and Piazza in 1997 by using the b-calculus and the spectral section. The boundary term there is the eta form with perturbation. In this talk, we will generalize the spectral section and the eta form to the equivariant case for a fiberwise compact Lie group action and discuss the properties of the equivariant version of eta forms with perturbation. We will also discuss some problems about the family index theorem with boundary.

Quantitative analysis on complete Kahler manifolds with nonnegative bisectional curvature

刘钢

华东师范大学

Abstract: We study quantitative analysis on complete Kahler manifolds with nonnegative bisectional curvature. As a result, we answer a question of Ni on the average of scalar curvature on such manifolds.

The linear instability of some families of Einstein metrics

王常亮

同济大学

Abstract：I will report on some works on the linear stability problem of Einstein metrics with positive scalar curvature, including some families which admit a real Killing spinor, and lower-dimensional homogeneous Einstein spaces. This talk is based on joint works with Prof. McKenzie Wang and Prof. Uwe Semmelmann.

Complex structures on Einstein four-manifolds of positive scalar curvature

吴鹏

同济大学

Abstract: In this talk we will discuss the existence of complex structures on simply connected Einstein four-manifolds of positive scalar curvature. We will show that if the determinant of the self-dual Weyl curvature is positive, then the Einstein metric is conformally equivalent to an extremal Kahler metric.

The L_p John ellipsoids for negative index

熊革

同济大学

Abstract: It is known that there exists a unique ellipsoid of maximal volume inside a convex body (a compact convex set with non-empty interiors) in R^n. This ellipsoid is

called John ellipsoid (named after mathematician Fritz John), and has many applications in convex geometry, functional analysis, and optimizations. In 2005, E.Lutwak, D.Yang and G.Zhang defined the L_p John ellipsoids for $p > 0$ and established their associated affine isoperimetric inequalities within the L_p Brunn-Minkowski theory.

In this talk, I will introduce our very recent work on L_p John ellipsoids for $p < 0$. This talk is based on the joint work with Xinbao Lu.