PKU conference on analysis and geometry 会议日程		
会议时间	**2025 年 5 月 29 日**	
会议地点	**北京国际数学研究中心镜春园 82 号院甲乙丙楼二层报告厅**	
时间	**内容**	
08:30-9:00	参会签到	
09:00-10:00	开幕式	陈大岳院长致辞
		胡俊书记致辞
		田刚院士介绍张恭庆院士学术贡献
		全体合影
10:00-10:15	茶歇	
10:15-11:00	学术报告	报告人：范辉军教授（武汉大学）
		主持人：王宏玉教授
11:05-11:50	学术报告	报告人：安歆亮教授（新加坡国立大学）
		主持人：章志飞教授
12:00-14:30	午餐（地点待定）	
14:30-15:15	学术报告	报告人：张若彬教授（University of Wisconsin-Madison）
		主持人：庆杰教授
15:20-16:05	学术报告	报告人：熊金钢教授（北京师范大学）
		主持人：史宇光教授
16:05-16:20	茶歇	
16:20-17:05	学术报告	报告人：王志超教授（复旦大学）
		主持人：朱小华教授

摘要

Speaker:范辉军教授（武汉大学）
Title: Landau-Ginzburg Model and Mirror Symmetry
Abstract: Laudau-Ginzburg model appears naturally in the study of mirror symmetry, viewed as the dual object of Fano manifold. It can be traced back to the study of singularity theory and topological quantum field theory in the early of 80' of last century. After the foundation of quantum singularity theory by Fan-Jarvis-Ruan, LG model attracts more attention in mathematics. I will report my idea and work on LG model, which I consider it as independent geometric object besides manifod.

Speaker: 安歆亮教授（新加坡国立大学）
Title: On Kerr Black Hole Formation and a New Approach Toward Penrose Inequality
Abstract: Black hole formation is a central question in mathematical general relativity, involving nonlinear wave equations, geometric analysis, and mathematical physics. In this talk I will present a recent joint work with Taoran He. For the 3+1 dimensional Einstein vacuum equations, we extend Christodoulou's celebrated trapped surface formation theorem to a black hole formation result. Without time-symmetric assumption, we further introduce a new approach and prove the spacetime Penrose inequality in perturbative regimes of sub-extremal Kerr black holes.

Speaker: 张若冰教授（University of Wisconsin-Madison）
Title: On the ends and global structure of Einstein manifolds with nonpositive scalar curvature
Abstract: An Einstein metric is, by definition, a Riemannian metric whose Ricci tensor is a constant multiple of the metric tensor. From a variational point of view, Einstein metrics are critical points of the Einstein-Hilbert functional, which is a suitable normalization of the total scalar curvature.
This talk will focus on the structure of Einstein manifolds with zero or negative scalar curvature. We will explore several different tools used to study the classification and regularity problems.

Speaker: 熊金钢教授（北京师范大学）
Title: Classification of extinction profiles for Sobolev critical fast diffusion equations
Abstract: This talk is concerned with classification of extinction profiles for the Sobolev-critical fast diffusion equation, subject to the zero Dirichlet boundary condition within bounded domains. We show that, upon appropriate rescaling, each solution either converges strongly to a steady-state or undergoes blow-up at a finite set of points, with a trivial weak limit. Fine blow up behavior is obtained. This is based on joint work with Zheng-Chao Han and Tianling Jin.

Speaker: 王志超教授（复旦大学）
Titile: Morse Inequality and minimal tori in the three-sphere with positive Ricci curvature
Abstract: In this joint work with XIngzhe Li, we prove the strong Morse inequalities for the area functional in the space of embedded tori and spheres in the three sphere. As a consequence, we prove that in the three dimensional sphere with positive Ricci curvature, there exist at least 4 distinct embedded minimal tori. Suppose in addition that the metric is bumpy, i.e. the area

functional is Morse, then the three-sphere contains at least 9 distinct embedded minimal tori. The proof relies on a multiplicity one theorem for the Simon-Smith min-max theory in a previous work with X. Zhou.