几何偏微分方程会议，2026

Geometric Partial Differential Equations Conference, 2026

中国科学院数学与系统科学研究院

Academy of Mathematics and Systems Science, CAS

2026 年 1 月 7 日至 13 日

January 7-13, 2026

组织委员会:
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目录

1 会议信息

1.1 会议概要

本次会议旨在促进国内外几何偏微分方程领域的研究发展，特邀 16 位该领域专家交流最新进展与动态。会议将涵盖几何分析、偏微分方程及其在几何中的应用等前沿课题。

1.2 基本信息

- **报告地点:** 数学院思源楼一层报告厅
- **报告时间:** 1 月 8 日-12 日上午
- **资助单位:** 中国科学院数学与系统科学研究院
- **住宿:** 辽宁大厦或物科宾馆
- **用餐地点:** 物科食堂

1.3 交通信息

- **打车:** 至辽宁大厦或中科院基础科学园区数学与系统科学研究院
- **北京南站:** 乘 4 号线到中关村站 B 东北口出站向东步行 1.5 公里
- **首都机场:** 乘地铁首都机场专线至三元桥转 10 号线到达知春里站 B 东北口向东北步行 1.4 公里
- **大兴机场:** 乘地铁机场专线至草桥站转 19 号线至牡丹园站转 10 号线到达知春里站 B 东北口向东北步行 1.4 公里

2 会议日程

表 1: 会议日程表

日期	时间	报告人	报告题目	主持人
1 月 7 日	报到：辽宁大厦			
1 月 8 日	9:00-9:10	**开幕式**		
	9:10-10:10	李岩岩	Conformally Invariant Elliptic Equations of Second Order	
	10:10-10:30	**茶歇**		
	10:30-11:30	金天灵	Some recent results on Monge−Ampère equations	
	11:30-14:30	**午餐**		
	14:30-15:30	俞晖	Generic regularity for the Alt-Caffarelli-Phillips problem	
	15:30-16:00	**茶歇**		
	16:00-17:00	Manchun Lee	Epsilon regularity on manifolds with small curvature concentration	
	17:30-	**晚餐**		
1 月 9 日	9:00-10:00	麻希南	Liouville theorem of the subcritical biharmonic equation on complete manifolds	
	10:00-10:30	**茶歇**		
	10:30-11:30	陈传强	The Minkowski type problems for a class of mixed Hessian type operators	
	11:30-14:30	**午餐**		
	14:30-15:30	夏超	Anisotropic minimal graphs over half-space with free boundary	
	15:30-16:00	**茶歇**		
	16:00-17:00	楚建春	Some comparison theorems in Kähler geometry	

日期	时间	报告人	报告题目	主持人
	17:30-	**晚餐**		
1 月 10 日	9:00-10:00	桂长峰	Improved Beckner’s Inequalities and Related Problems	
	10:00-10:30	**茶歇**		
	10:30-11:30	刘佳堃	Free boundary problems in optimal transportation	
	11:30-14:30	**午餐**		
	自由交流			
	17:30-	**晚餐**		
1 月 11 日	9:00-10:00	李东升	Global Solutions of Obstacle Problems for Fully Nonlinear Elliptic operators	
	10:00-10:30	**茶歇**		
	10:30-11:30	刘勇	Nontrivial stable solutions of U(1) Yang-Mills-Higgs model in $\mathbb{R}^4$	
	11:30-14:30	**午餐**		
	14:30-15:30	姜旭旻	Asymptotic behavior of high codimensional minimal surfaces in hyperbolic space	
	15:30-16:00	**茶歇**		
	16:00-17:00	沈伟明	The Monge-Ampere equation in convex polytope	
	17:30-	**晚餐**		
1 月 12 日	9:00-10:00	韦韡	Optimal geometric inequalities and fully nonlinear conformal flows	
	10:00-10:30	**茶歇**		
	10:30-11:30	郝子航	The Rigidity of Dimension Estimate for Holomorphic Functions on Kähler Manifolds	
	11:30-14:30	**午餐**		

日期	时间	报告人	报告题目	主持人
	自由讨论			
	17:30-	**晚餐**		
1 月 13 日	**离会**			

3 报告摘要

1. **李岩岩** (Rutgers University)

   题目： Conformally Invariant Elliptic Equations of Second Order

   摘要： Conformally invariant second-order elliptic equations arise naturally in geometric analysis, particularly in settings involving scalar curvature, Schouten tensor geometry, and Möbius invariance. Their nonlinear structure gives rise to striking analytical phenomena—rigidity, delicate compactness behavior, and subtle singularity formation—that sharply distinguish them from classical uniformly elliptic equations. In this talk, I will present an overview of recent developments in this area and highlight several intriguing open problems.

2. **金天灵** (香港科技大学)

   题目： Some recent results on Monge–Ampère equations

   摘要： In this talk, I will introduce some recent results on Monge–Ampère equations, such as the Liouville theorems for global solutions to those with nonnegative periodic measure, to those with finite perturbation of the Lebesgue measure, revisiting the Alexandrov estimate, and a Monge–Ampère obstacle problem. This is based on the joint works with YanYan Li, Hung Tran, Xushan Tu and Jingang Xiong.

3. **俞晖** (新加坡国立大学)

   题目： Generic regularity for the Alt-Caffarelli-Phillips problem

   摘要： The Alt-Caffarelli problem and the Alt-Phillips problem are among the most well-studied elliptic free boundary problems. Much effort has been devoted to estimating the size of the singular set on the free boundary, for instance, in terms of its Hausdorff dimension. In this talk, we discuss how such estimates can be improved for generic boundary data. This talk is based on joint works with Xavier Fernández-Real at EPFL.

4. **Manchun Lee** (香港中文大学)

   题目： Epsilon regularity on manifolds with small curvature concentration

   摘要： In this talk, we will discuss the epsilon regularity of manifolds with local Euclidean volume growth, local Sobolev control and relative small curvature concentration. We discuss the local smoothing approach by Ricci Flow and discuss several applications.

5. **麻希南** (中国科学技术大学)

   题目： Liouville theorem of the subcritical biharmonic equation on complete manifolds

   摘要： we study the subcritical biharmonic equation $\Delta^2 u = u^\alpha$ on a complete, connected, and non-compact Riemannian manifold (M^n, g) with nonnegative Ricci curvature. Using the method of invariant tensors, we derive a differential identity to obtain a Liouville theorem, i.e., there is no positive C^4 solution if $n \geqslant 5 and 1 < \alpha < \frac{n+4}{n-4}$. We establish a crucial second-order derivative estimate, which is established via Bernstein's technique and the continuity method。This is joint work with Tian WU and Wangzhe WU.

6. **陈传强** (宁波大学)

   题目： The Minkowski type problems for a class of mixed Hessian type operators

   摘要： In this talk, we introduce some mixed Hessian type operators and some works about the

corresponding Minkowski type problems, which are joint works with Lu Xu.

7. **夏超** (厦门大学)

   题目： Anisotropic minimal graphs over half-space with free boundary

   摘要： In this talk, we prove Bombieri-de Giorgi-Miranda-type gradient estimate for anisotropic minimal graphs with free boundary. As a result, we prove that any anisotropic minimal graph over half-space with free boundary must be flat, provided that the graph function has at most one-sided linear growth. This yields a similar result for minimal graphs with capillary boundary. This is joint with Guofang Wang, Wei Wei and Xuwen Zhang.

8. **楚建春** (北京大学)

   题目： Some comparison theorems in Kähler geometry

   摘要： In this talk, we will present some comparison theorems and related open questions in Kähler geometry, including volume, diameter, and eigenvalue comparisons under various curvature assumptions. Then we will focus on rigidity results for eigenvalues on Kähler manifolds with positive Ricci lower bound. More precisely, for those Kähler manifolds whose first eigenvalue agrees with the Ricci lower bound, we will show that the complex projective space is the only one with the largest multiplicity of the first eigenvalue. Moreover, there is a specific gap between the largest and the second largest multiplicity. In the Kähler-Einstein case, almost rigidity results for eigenvalues are also obtained. This is a joint work with Feng Wang and Kewei Zhang.

9. **桂长峰** (澳门大学, 珠海澳大科技研究院)

   题目： Improved Beckner' s Inequalities and Related Problems

   摘要： The classical Moser-Trudinger inequality is a borderline case of Sobolev inequalities and plays an important role in geometric analysis and PDEs in general. Various improvements of Moser-Trudinger inequality including Aubin and Onofri inequalities on the sphere with or without mass center constraints have been obtained recently. Efforts have also been made to show similar inequalities in higher dimensions which are related to the Beckner' s inequality. I will present the improved Beckner' s inequality for axially symmetric functions when the dimension n = 4, 6, 8 as well as a higher order constrainted inequality. Many questions remain open. The talk is based on collaborations with Amir Moradifam, Sun-Yung Alice Chang, Yeyao Hu, Weihong Xie, Tuoxin Li, Juncheng Wei, And Zikai Ye.

10. **刘佳堃** (悉尼大学，澳大利亚)

    题目： Free boundary problems in optimal transportation

    摘要： In this talk, I will present some recent results on the regularity of free boundaries in optimal transportation, including higher-order regularity, global regularity, and a model case involving multiple targets. These results are based on a series of joint works with Shibing Chen, Xianduo Wang and Xu-Jia Wang.

11. **李东升** (西安交通大学)

    题目： Global Solutions of Obstacle Problems for Fully Nonlinear Elliptic operators

    摘要： In this talk, we will study global solutions of obstacle problems for fully nonlinear elliptic operators in R^n. The elliptic operator F is assumed to be convex and $C^{1,\alpha}$, and the solution u to be positive and $C^{1,1}$ with bounded D^2u. If the coincidence set can be contained between two

parallel hyperplanes of dimension n-1, we will show that the coincidence set is either a bounded convex set or a cylinder with a bounded convex set as base.

12. **刘勇** (北京工商大学)

    题目： Nontrivial stable solutions of U(1) Yang-Mills-Higgs model in $\mathbb{R}^4$

    摘要： We prove that the solutions constructed by Liu-Ma-Wu-Wei with nodal set concentrating at the Arezzo-Pacard minimal submanifolds are stable and nondegenerate. Intuitively, the stability of these solutions corresponds to the fact that holomorphic curves are area-minimizing. The main idea of the proof establishes the precise relationship between the second variation of the $U(1)$-Yang-Mills-Higgs functional and that of the area functional. Our result stands in sharp contrast to the scalar Allen-Cahn equation which admits nontrivial stable solutions in $\mathbb{R}^8$.

13. **姜旭旻** (大湾区大学)

    题目： Asymptotic behavior of high codimensional minimal surfaces in hyperbolic space

    摘要： We talk about the asymptotic behavior of high codimensional area-minimizing rectifiable currents in hyperbolic space that are asymptotic to a differential manifold at infinity. We elaborate on the mass bound estimates, rough asymptotic behavior, high regularity theorems and convergence theorems. This is a joint work with Jiongduo Xie.

14. **沈伟明** (首都师范大学)

    题目： The Monge-Ampere equation in convex polytope

    摘要： I will talk about the existence and regularity of solutions for the Monge-Ampere equation in convex polyhope. This is based on joint works with Genggeng Huang.

15. **韦韡** (南京大学)

    题目： Optimal geometric inequalities and fully nonlinear conformal flows

    摘要： We generalize the Sobolev inequality in $\mathbb{S}^n$ to various optimal inequalities involving the total σ_k integrals, which improve the previous results from Guan-Wang by showing that the inequalities established by Guan-Wang hold in a larger space. This would make these inequalities more applicable. This is a joint work with Y. X. Ge and G. F. Wang.

16. **郝子航** (北京大学)

    题目： The Rigidity of Dimension Estimate for Holomorphic Functions on Kähler Manifolds

    摘要： In this talk, we will first introduce some previous results on the space of holomorphic functions with polynomial growth on Kähler manifolds with non-negative holomorphic bisectional curvature. Then we prove the optimal rigidity of dimension estimate. This is a joint work with Prof. Jianchun Chu.