中国科学技术大学
数学科学学院
School of Mathematical Sciences USTC

2026 华东地区青年学者论坛

会议手册

主办：中国科学技术大学数学科学学院

2026年6月5日—6月7日

2026 华东地区青年学者论坛

会议地点：东区五教 5101 教室

6 月 6 日（周六）

时间 / 学校	内容	报告人
08:30-08:40	**开幕式**	
上海交通大学	**主持人：楼元**	
08:40-09:10	**报告 1：** Recent progress on stochastic dispersive and fluid equations	张　登
09:10-09:40	**报告 2：** Mixed-type Partial Differential Equations and the Isometric Immersion Problem	李思然
09:40-10:10	**报告 3：** Equivariant min-max theory and the spherical Bernstein problem in $\mathbb{S}^4$	王童瑞
10:10-10:30	**合影**	
南京大学	**主持人：喻良**	
10:30-11:00	**报告 4：** Prescribed curvature problems, geometric inequalities and rigidity problems in conformal geometry	陈学长
11:00-11:30	**报告 5：** Classification of atmospheric traveling waves at cloud level	朱　昊
11:30-12:00	**报告 6：** Categorical Structures in Symplectic Geometry: Infinity, Localization, and Mirror Symmetry	高　原
12:00-14:00	**午餐 & 休息**	
浙江大学	**主持人：刘一峰**	
14:00-14:30	**报告 7：** 从同余方程数点到微积分	吴　磊
14:30-15:00	**报告 8：** Restriction conjecture, Bochner-Riesz conjecture and a question of Hörmander	席亚昆
15:00-15:30	**报告 9：** Mean Lindelof Hypothesis and Prime Geodesic Theorem over Bianchi Manifolds	齐　治

15:30-15:50	**休息 & 交流**	
复旦大学	**主持人：沈维孝**	
15:50-16:20	**报告 10：** 基于景观理论的随机动力学推断及应用	李春贺
16:20-16:50	**报告 11：** Monge-Ampere equation with Guillemin boundary condition	黄耿耿
16:50-17:20	**报告 12：** Selberg, Ihara and Berkovich	李嘉伦
18:00	**晚 餐**	

6 月 7 日（周日）

时间 / 学校	内容	报告人
华东师范大学	**主持人：刘钢**	
08:30-09:00	**报告 13：** The LYZ equation in Kähler geometry	张德凯
09:00-09:30	**报告 14：** Radon measure-valued solutions and mathematics of inviscid hypersonic flows	袁海荣
09:30-10:00	**报告 15：** Noether 直线上的三维簇	张 通
10:00-10:20	**休息 & 交流**	
中国科学技术大学	**主持人：黄文**	
10:20-10:50	**报告 16：** Teichmuller 理论及其相关课题	孙 哲
10:50-11:20	**报告 17：** Counting cliques with prescribed intersection sizes	张先得
11:20-11:50	**报告 18：** Minimal surfaces and some related topics	许小卫
12:00	**午 餐**	

题目与摘要

报告 1

题　目： Recent progress on stochastic dispersive and fluid equations

报告人： 张登（上海交通大学）

摘　要：

In this talk we will review some recent progresses on stochastic dispersive and fluid equations. More precisely, it is shown the construction and conditional uniqueness of multi-bubble blow-ups and multi-solitons to (stochastic) nonlinear Schrödinger equations, related to the mass quantization conjecture and the uniqueness open problem posed by Martel (ICM 2018). Further well-posedness and scattering results are derived for the 4D energy-critical stochastic Zakharov system.

For stochastic Navier-Stokes equations, the continuous energy solutions are constructed in the 3D case. In the 2D case, we will present the McKean vision on nonlinear Markov process, and also show the Lagrangian chaos driven by degenerate bounded noise related to the open problem posed by Bedrossian (ICM 2022).

报告 2

题　目： Mixed-type Partial Differential Equations and the Isometric Immersion Problem

报告人： 李思然（上海交通大学）

摘　要：

This talk is about a classical problem in differential geometry and global analysis: the isometric immersions of Riemannian manifolds into Euclidean spaces. We focus on the PDE approach to isometric immersions, i.e., the analysis of Gauss--Codazzi--Ricci equations, especially in the regime of low Sobolev regularity. Such equations are not purely elliptic, parabolic, or hyperbolic in general, hence calling for analytical tools for PDEs of mixed types. We discuss various recent contributions -- in line with the pioneering works by G.-Q. Chen, M. Slemrod, and D. Wang (2010) -- on the weak continuity of Gauss--Codazzi--Ricci equations, the interior regularity of flat isometric immersions, and the fundamental theorem of submanifold theory with low regularity. Two mixed-type PDE techniques are emphasised throughout these developments: the method of compensated compactness and the theory of Coulomb--Uhlenbeck gauges. (Joint with Reza Pakzad (Toulon), Armin Schikorra (Pittsburgh), and Xiangxiang Su (Shanghai Jiao Tong).)

报告 3

题　目： Equivariant min-max theory and the spherical Bernstein problem in $\mathbb{S}^4$

报告人： 王童瑞（上海交通大学）

摘　要：

In this talk, I will introduce a new resolution of Chern's spherical Bernstein problem in S^4 by constructing an embedded non-equatorial minimal S^3. The construction is based on our equivariant min-max theory for G-invariant minimal hypersurfaces with reduced genus bound, where G is a compact Lie group acting by isometries on a closed Riemannian manifold M with 3-dimensional orbit space M/G. Our approach also shows the existence of two distinct minimal hyperspheres and a minimal hypertorus in a certain class of Riemannian S^4 with symmetries. This talk is based on the joint work with Zhichao Wang and Xin Zhou.

报告 4

题　目： Prescribed curvature problems, geometric inequalities and rigidity problems in conformal geometry

报告人： 陈学长（南京大学）

摘　要：

This is a survey talk about our works in the field of conformal geometry and geometric PDEs. We start with our works in the boundary Yamabe problem, prescribed σ_2 curvature and boundary mean curvature problem; these problems give natural motivations to the study of some related topics including geometric inequalities on Poincare-Einstein manifolds and their rigidity theorems, Sobolev trace inequalities in the unit ball under constraints, etc; finally we go to our Green function rigidity conjecture and its development.

报告 5

题　目： Classification of atmospheric traveling waves at cloud level

报告人： 朱昊（南京大学）

摘　要：

We classify within the quasi-geostrophic framework all types of traveling waves in zonal bands of the planetary atmosphere at cloud level according to their wave speeds. This classification pertains to waves of all amplitudes, going beyond the small-amplitude perturbative regime. Each wave classification type was observed on Jupiter or Saturn. Building on this classification, we also give a thorough characterization of traveling waves near a monotone shear flow, and study the related rigidity issue for large-amplitude traveling waves. This is a joint work with Profs. Adrian Constantin and Zhiwu Lin.

报告 6

题　目： Categorical Structures in Symplectic Geometry: Infinity, Localization, and Mirror Symmetry

报告人： 高原（南京大学）

摘　要：

A central challenge in symplectic topology is understanding how geometric behavior at infinity shapes categorical invariants. To address this, we first explore Lagrangian correspondences in wrapped Floer theory, establishing the fundamental functoriality of these invariants. We then introduce a framework bridging symplectic geometry with non-commutative derived geometry to algebraically characterize the Fukaya category at infinity. Central to translating these localized phenomena into precise algebraic models is the Rabinowitz-Fukaya category, which is expected to be systematically reconstructed from a broader framework of Floer theory with support.

To ground these local-to-global principles, we formulate an algebraic descent theory for quasi-coherent and coherent sheaves in terms of local A_∞-modules, which in concrete symplectic applications naturally arise from the construction of local Fukaya categories. Together, these geometric and algebraic developments lay the groundwork for a systematic approach to Homological Mirror Symmetry.

报告 7

题　目： 从同余方程数点到微积分

报告人： 吴磊（浙江大学）

摘　要：

给定一个多项式，关于它的零点集以及零点集的几何性质的理解是奇点理论中的一个重要问题。这个问题与代数几何、算术几何以及微分拓扑等领域都有密切的关系。本次报告，我们将从同余方程数点（即相应的庞加莱级数求和）和微积分（即相应的 b-函数与阿基米德 zeta 函数）等角度来理解多项式函数零点集的奇点信息。其次，我们将介绍多项式函数的单值化猜想，从而将这些不同的理解角度统一起来。最后，我们将简要介绍报告人相关的工作。

报告 8

题　目： Restriction conjecture,　Bochner-Riesz conjecture and a question of Hörmander

报告人： 席亚昆（浙江大学）

摘　要：

This talk presents progress on the restriction problem, Bochner–Riesz summability. In particular, we provide a full solution to a question of Hörmander.

报告 9

题　目： Mean Lindelof Hypothesis and Prime Geodesic Theorem over Bianchi Manifolds

报告人： 齐治（浙江大学）

摘　要：

I will introduce my joint work with Changlin Li on the settlement of the mean Lindelof hypothesis for symmetric square L-functions over imaginary quadratic fields with application to the Prime Geodesic Theorem over Bianchi manifolds.

报告 10

题　目： 基于景观理论的随机动力学推断及应用

报告人： 李春贺（复旦大学）

摘　要：

解析细胞命运决定的底层随机动力学机制是生命科学面临的核心挑战。在以往的研究中，我们基于非平衡统计物理发展了势能景观理论（Energy Landscape Theory），为量化复杂生物系统的稳定性与相变（如细胞分化、疾病演化）提供了定量数学方法。然而，传统从高维静态单细胞快照数据中推断动态机制的方法，始终面临着“机理模型脱离实际”与“数据驱动缺乏解释性”的矛盾。为此，我们提出了融合生物物理机理的深度学习方法—DynNet，成功从静态单细胞转录组数据中学习基因调控系统的随机动力学。DynNet 不仅能精准重构肝细胞分化与上皮-间质转化 (EMT) 的动态轨迹和关键调控网络，更直接利用真实数据构建了高维的细胞命运景观 (Cell Fate Landscape），定量刻画了多稳态细胞状态的转移概率和路径。这些方法促进解析高维复杂系统的随机动力学机制。

报告 11

题　目： Monge-Ampere equation with Guillemin boundary condition

报告人： 黄耿耿（复旦大学）

摘　要：

We will talk about the Guillemin boundary value problem of Monge-Ampere equation in a simple convex polytope in R^n. This is a joint work with Weiming Shen.

报告 12

题　目： Selberg, Ihara and Berkovich

报告人： 李嘉伦（复旦大学）

摘　要：

We use the Selberg zeta function to study the limit behavior of resonances in a degenerating family of Kleinian Schottky groups. We prove that, after a suitable rescaling, the Selberg zeta functions converge to the Ihara zeta function of a limiting finite graph associated to the relevant non-Archimedean Schottky group acting on the Berkovich projective line.

Moreover, we show that these techniques can be used to get an exponential error term in a result of McMullen (recently extended by Dang and Mehmeti) about the asymptotics for the vanishing rate of the Hausdorff dimension of limit sets of certain degenerating Kleinian Schottky groups generating symmetric three-funnels surfaces. Here, one key idea is to introduce an intermediate zeta function capturing \emph{both} non-Archimedean and Archimedean information (while the traditional Selberg, resp. Ihara zeta functions concern only Archimedean, resp. non-Archimedean properties). Based on ongoing joint work with Carlos Matheus, Wenyu Pan and Zhongkai Tao.

报告 13

题　目： The LYZ equation in Kähler geometry

报告人： 张德凯（华东师范大学）

摘　要：

In Kähler geometry, the LYZ equation, also known as the deformed Hermitian-Yang-Mills equation, is a fully nonlinear elliptic partial differential equation that arises from mirror symmetry. In this talk, we present existence results for smooth solutions to the LYZ equation in the critical phase on compact Kähler manifolds. This is joint work with Prof. Jixiang Fu and Prof. Shing-Tung Yau.

报告 14

题　目： Radon measure-valued solutions and mathematics of inviscid hypersonic flows

报告人： 袁海荣（华东师范大学）

摘　要：

I will review the progress we made on a mathematical theory of inviscid hypersonic flows based upon the framework of Radon measure-valued solutions of the compressible Euler equations. It is shown that the hypersonic Mach number independence principle, the Newtonian theory of infinite-thin shock layer, and the Newtonian-Busemann pressure law, as well as the hypersonic similarity law, can all be verified rigorously in this new framework, which put a foundation for future theoretical studies and applications.

报告 15

题　目： Noether 直线上的三维簇

报告人： 张通（华东师范大学）

摘　要：

在本次报告中，我们将回顾一般型三维代数簇的 Noether 不等式问题，并介绍如何对满足 Noether 等式的三维簇进行分类。这是基于与 S. Coughlan，胡勇，R. Pignatelli 合作的工作。

报告 16

题　目： Teichmuller 理论及其相关课题

报告人： 孙哲（中国科学技术大学）

摘　要：

Teichmuller 理论为几何拓扑、复分析、动力系统、辛几何、代数几何等诸多领域交叉理论。本次报告将讨论模空间体积以及高阶 Teichmuller 空间对偶最近发展。

报告 17

题　目： Counting cliques with prescribed intersection sizes

报告人： 张先得（中国科学技术大学）

摘　要：

Let $L\subseteq [0,r-1]$ be a fixed integer set, and let $\Psi_r(n,L)$ denote the maximum number of r-cliques in an n-vertex graph whose r-cliques are L-intersecting as a family of r-subsets. The determination of $\Psi_r(n,L)$ can be viewed as a combination of Generalized Turan problems in graph theory and restricted intersecting problems in extremal combinatorics. In this talk, we present progress on the function $\Psi_r(n,L)$ and some related results.

报告 18

题　目： Minimal surfaces and some related topics

报告人： 许小卫（中国科学技术大学）

摘　要：

We introduce some results on classification of minimal two-spheres with constant curvature in symmetric space，geometry and analysis of　minimal cones and some other topics.