北京几何日

Beijing Geometry Day

2024.3.29——3.31

主办单位：北航数学科学学院

北京几何日(Beijing Geometry Day)

科学委员会:

方复全（首都师范大学）

田　刚（北京大学）

组织委员会:

葛建全（北京师范大学）

李海中（清华大学）

张振雷（首都师范大学）

朱小华（北京大学）

北航组织者：

贺慧霞、江寅、沈良明、谢振肖、张世金

会议地点和时间:　北京宽沟会议中心（怀柔），2024.3.29-3.31

注册时间：

2024.3.29 日晚上和 3.30 日上午

会议联系人：

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会议日程

2024.3.30

时 间	报告人	题目	主持人
9：15-9：30	韩德仁、田 刚、方复全	开幕致辞	张世金
9：30-10：30	孙 鑫	二维渗流、随机三角剖分、与刘维尔量子引力	待定
10：30-11：00	合影、茶歇		
11：00-12：00	汪志威	Recent progress on the positivities in several complex variables and complex geometry	待定
12：00-14：30	午餐		
14：30-15：30	张永胜	Spiral Minimal Products	待定
15：30-16：00	茶歇		
16：00-17：00	谢振肖	Minimal immersions of conformally flat tori in S^n by the first eigenfunctions	待定
17：30-20：00	晚餐		

报告题目和摘要

1. **报告人**: 孙鑫 （北京大学）

题目: 二维渗流、随机三角剖分、与刘维尔量子引力

摘要: 对二维渗流模型共形不变性的数学研究始于 Smirnov 关于 Cardy 公式的证明。基于 Smirnov 的证明可以提炼出一个离散的共性嵌入。在这一嵌入下，我与 Holden 证明了随机三角剖分的连续极限是纯刘维尔量子引力。 本报告将首先回顾这一工作，随后我将介绍量子引力的思想在渗流模型中的一个最近的应用，基于我和 Pierre Nolin、钱玮、庄子杰的合作。

2. **报告人**：汪志威（北京师范大学）

题目: Recent progress on the positivities in several complex variables and complex geometry

摘要: In this talk, we will introduce our recent results on the positivities in several complex variables and complex geometry. These results are based on joint works with Yinji Li and Professors Xiangyu Zhou, Fusheng Deng, Jiafu Ning, Liyou Zhang.

3. **报告人**：张永胜 (首都师范大学）

题目：Spiral Minimal Products

摘要：We discover a structure -- spiral minimal product (SMP) among minimal submanifolds in unit Euclidean spheres. For a pair of C-totally real minimal submanifolds $f_1:M_1\to S^{2n+1}$ and $f_2:M_2\to S^{2m+1}$, their SMP is formulated by $G(t,x,y)=(\gamma_1(t)f_1(x),\gamma_2(t)f_2(y))$ where $\gamma=(\gamma_1,\gamma_2)$ is some suitable immersed curve in the unit sphere of C^2 to make G minimal. There come out a family of SMPs depending on intriguing pendulum type phenomena with two parameters C_1 and C_2 where C_1 serves as the ratio of oriented angular momenta of complex components of γ. If need be, every minimal submanifold in a sphere can be thought of as a C-totally real minimal submanifold in a higher dimensional sphere. So the SMP structure is generally applicable. Moreover, when $C_1=-1$, the SMP structure can descend to a nontrivial structure of the category of (even restricted to embedded) minimal Lagrangian submanifolds in complex projective spaces. In fact, in course of proving so, numerous new special Lagrangian cones in complex Euclidean spaces can be gained. When $C_1=0$, the singly spiral minimal product can help produce minimal submanifolds of dimension larger than half that of the ambient sphere. This talk is based on a joint work with Professor Haizhong Li.

4. **报告人**: 谢振肖 （北京航空航天大学）

题目: Minimal immersions of conformally flat tori in S^n by the first eigenfunctions

摘要: Minimal immersions of Riemannian manifolds in S^n by the first eigenfunctions appear naturally in the investigation of conformal volume and related topics in the spectral geometry. The classification of such immersions is known only for round spheres and 2-torus. In this talk, we will give a complete classification to conformally flat tori of dimension 3 and 4. Several interesting examples will be discussed, such as a 2-parameter family of non-congruent λ_1-minimal flat 4-tori. The maximizers of the dilation invariant first eigenvalue functional on flat 3-tori and 4-tori will also be shown. This is a joint work with Ying Lv and Peng Wang.