国家天元数学西南中心&国家天元数学东南中心

天元中心学术交流会

会议日程

地点：四川大学数学学院

2019 年 4 月 27 日（星期六）

主持人：连　增　　**东 409 报告厅**

09:00—09:30	**On Viscous Surface Waves Without Surface Tension** 王焰金(厦门大学)
09:30—10:00	**Full dimensional KAM tori for Hamiltonian partial differential equations** 刘建军（四川大学）
10:10—10:40	茶歇　　东 410 休息室
10:40—11:10	**Group Actions and Weighted Projective Lines** 陈健敏（厦门大学）
11:10—11:40	**Numerical methods on simulating dynamics of the nonlinear Schrödinger equation with rotation and/or nonlocal interactions** 唐庆粦（四川大学）
12:00—13:00	午餐

主持人：邱建贤　　**东 409 报告厅**

14:30—15:00	**Riemannian Optimization and Its Application in Computing Low-rank Solutions of Lyapunov Equations** 黄　文（厦门大学）
15:00—15:30	**Control of Stochastic Partial Differential Equations** 吕　琦（四川大学）
15:30—16:00	茶歇　　东 410 休息室
16:00—16:30	**On Flat Hermitian Manifolds** 杨　波（厦门大学）
16:30—17:00	**随机游走圈渗流** 常寅山（四川大学）

题目及摘要

常寅山（四川大学）

题目：随机游走圈渗流

摘要：随机游走圈集是某图上的离散圈集上的泊松点过程。随机游走圈集诱导了一个图上的渗流模型。我们主要介绍整数格点图 Zd 上的该渗流模型及其相关性质。

陈健敏（厦门大学）

题目：Group Actions and Weighted Projective Lines

摘要：Weighted projective lines, introduced by Geigle and Lenzing, are a kind of objects in representation theory have a nice structure. The study of projective lines is closely related to canonical algebras, plane projective curves, Hall algebras and quantum algebras, singularity theory, GL order, and so on. Group actions and equivariantizations are effective tools for connecting different algebraic objects. In this talk, I will show the relationship between weighted projective lines via group actions and equivariantizations.

黄　文（厦门大学）

题目：Riemannian Optimization and Its Application in Computing Low-rank Solutions of Lyapunov Equations

摘 要： Optimization on Riemannian manifolds, also called Riemannian optimization, considers finding an optimum of a real-valued function defined on a Riemannian manifold. Riemannian optimization has been a topic of much interest over the past few years due to many important applications, e.g., blind

source separation, computations on symmetric positive matrices, low-rank learning, graph similarity, community detection, and elastic shape analysis. In this presentation, the framework of Riemannian optimization is introduced, and the history and current state of Riemannian optimization algorithms are briefly reviewed. Optimization problems of Computing Low-rank Solutions of Lyapunov Equations are used to demonstrate the efficiency and effectiveness of Riemannian optimization.

刘建军（四川大学）

题目：Full dimensional KAM tori for Hamiltonian partial differential equations

摘要：In this talk, I will discuss the existence and long time stability of full dimensional KAM tori for Hamiltonian partial differential equations.

吕　琦（四川大学）

题目：Control of Stochastic Partial Differential Equations

摘要：In this talk, I present some recent works on the control problems of stochastic partial differential equations, including the controllability and optimal control problems for stochastic parabolic/Schrodinger/hyperbolic equations.

唐庆粦（四川大学）

题目：Numerical methods on simulating dynamics of the nonlinear Schrödinger equation with　rotation and/or nonlocal interactions

摘要： In this talk, we will present efficient numerical methods for simulating dynamics of the nonlinear Schrödinger equation (NLSE) with nonlocal potential and rotation term. The method consists two main merits: (i) a rotating Lagrangian coordinate transformation will be presented to eliminate the rotation term. (ii) efficient and accurate numerical methods will then be presented to evaluate nonlocal potential of different types. In addition, extension to other systems will also be considered.

王焰金(厦门大学)

题目：On Viscous Surface Waves Without Surface Tension

摘要： We consider a viscous, incompressible fluid below the air and above a fixed solid bottom. The fluid dynamics is governed by the gravity-driven incompressible Navier-Stokes equations, and the effect of surface tension is neglected on the free surface. The global existence and long-time behavior of solutions near equilibrium has been an intriguing question since Beale (Comm. Pure Appl. Math. 34 (1981), no. 3, 359-392). By exploiting the anisotropic decay for the horizontal and vertical derivatives of the velocity, we prove a new global well-posedness in both 3D and 2D.

杨　波（厦门大学）

题目：On Flat Hermitian Manifolds

摘要： This talk is based on works with Fangyang Zheng and others. We first review some recent progress on Hermitian geometry, then focus on compact or complete Hermitian manifolds with flat Hermitian connections.

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