

2023 哈尔滨地区泛函分析研讨会

程序册



哈尔滨工业大学数学研究院

2023 年 3 月 31 日-4 月 2 日

2023 哈尔滨地区泛函分析研讨会

时间：2023 年 3 月 31 日-4 日 2 日

会议地点：哈尔滨工业大学一校区明德楼 B 区 201-1 学术报告厅

与会专家（按姓名首字母排序）：

陈丽丽	山东科技大学	马海凤	哈尔滨师范大学
崔云安	哈尔滨理工大学	庞薇薇	黑龙江科技大学
方玉周	哈尔滨工业大学	单冰洁	哈尔滨师范大学
付永强	哈尔滨工业大学	商绍强	哈尔滨工程大学
郭天保	哈尔滨理工大学	宋 文	哈尔滨师范大学
贺 鑫	哈尔滨师范大学	王斯萌	哈尔滨工业大学
洪桂祥	哈尔滨工业大学	王玉文	哈尔滨师范大学
黄景灏	哈尔滨工业大学	王 紫	哈尔滨师范大学
赖旭东	哈尔滨工业大学	吴森林	中北大学
李朝博	哈尔滨理工大学	熊 梟	哈尔滨工业大学
李建阁	哈尔滨工业大学	许全华	哈尔滨工业大学
李 科	哈尔滨工业大学	薛小平	哈尔滨工业大学
李小彦	哈尔滨师范大学	张 超	哈尔滨工业大学
刘冠琦	哈尔滨师范大学		

学术委员会主席：许全华

组织委员会：薛小平、熊梟、张超

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会议日程

4月1日 上午

08:40-09:00	欢迎致辞
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主持人：许全华		
09:00-09:45	吴森林	不变内积诱导的正交关系
主持人：王玉文		
09:45-10:30	李建阁	Forward and reverse entropy power inequalities
主持人：薛小平		
11:00-11:45	商绍强	The application of Banach space geometry set-valued metric generalized inverse

4月1日 下午

主持人：宋文		
15:00-15:45	马海凤	Characterizations and perturbations of the core-EP inverse of tensors based on the T-Product
主持人：崔云安		
16:15-17:00	方玉周	Equivalence of the solutions to double phase problems

4月2日 上午

主持人：付永强		
09:30-10:15	黄景灏	Isometries on noncommutative symmetric spaces
主持人：洪桂祥		
10:45-11:30	贺鑫	非交换 Hardy-Orlicz-Lorentz 空间的 Szegő 型分解定理

报告题目与摘要

4月1日上午

不变内积诱导的正交关系

吴森林
中北大学

摘要. 利用不变内积的概念，一种新的正交关系被引入到一般的赋范线性空间中。我们将介绍该正交关系的定义、基本性质、它与其它正交关系的定性和数量关系以及与之相关的待解决的问题。

Forward and reverse entropy power inequalities

李建阁
哈尔滨工业大学

Abstract. Shannon's entropy power inequality, which plays a fundamental role in information theory and probability, may be seen as an analogue of the Brunn-Minkowski inequality in convex geometry. In this talk, we survey various recent developments on forward and reverse entropy power inequalities and discuss close connections with classical inequalities in convex geometry and functional analysis.

The application of Banach space geometry set-valued metric generalized inverse

商绍强
哈尔滨工程大学

Abstract. In this report, we use the geometric properties of Banach spaces to study the continuity of set-valued metric generalized inverse. Moreover, we give an answer to the open problem of continuous selection by American mathematical Nashed.

4月1日下午

Characterizations and perturbations of the core-EP inverse of tensors based on the T-Product

马海凤
哈尔滨师范大学

Abstract. We investigate the theory of the core-EP inverse of third-order tensors via the T-product (called T-core-EP inverse). A new decomposition called T-core-EP decomposition of tensors is given by the T-Schur decomposition. A canonical form and some characterizations of the T-core-EP inverse are presented. Finally, we establish the perturbation bounds for the T-core-EP inverse.

Equivalence of the solutions to double phase problems

方玉周
哈尔滨工业大学

Abstract. Double phase functionals were first introduced by V. V. Zhikov in 1980s to characterize the features of the strongly anisotropic materials, homogenization and Lavrentiev phenomenon. Since M. Colombo and G. Mingione solved the basic regularity issue on such functionals in 2015, the relevant theory on this kind of problems has made rapid progress from the variational point of view, but, in sharp contrast, viscosity theory is rarely explored. In this talk we will first recall the properties of Musielak-Orlicz space, then present the regularity of viscosity solutions to double phase equations, together with the inner relationship between such solutions and the weak solutions in Musielak-Orlicz-Sobolev space.

4月2日上午

Isometries on noncommutative symmetric spaces

黄景灏

哈尔滨工业大学

Abstract. The study of the description of isometries on symmetric spaces was initiated by Banach, who obtained the general form of isometries between L_p spaces on a finite measure space. Representation of linear isometries between more general symmetric function spaces were later obtained by Lumer, Zaidenberg and Kalton, etc. In the 1950s, Kadison showed that a surjective linear isometry between two von Neumann algebras can be written as a Jordan $*$ -isomorphism followed by a multiplication of a unitary operator. The complete description (for the semifinite case) of isometries on noncommutative L_p -spaces was obtained by Yeadon. However, for general separable noncommutative symmetric spaces E , the description of surjective isometries on E was obtained by Sourour (1981) and by Sukochev (1996) in some special settings. In our joint paper with Sukochev, we provide a complete description of all surjective linear isometries on separable noncommutative symmetric spaces affiliated with a semifinite von Neumann algebra, which answers a long-standing open question raised in the 1980s.

非交换 Hardy-Orlicz-Lorentz 空间的 Szegő型分解定理

贺鑫

哈尔滨师范大学

摘要. 本报告基于 Arveson 的理论, 给出非交换 Hardy-Orlicz-Lorentz 空间的定义, 讨论由增长函数生成的非交换 Hardy-Orlicz-Lorentz 空间的 Szegő型分解定理和 Riesz 型分解定理。另外, 讨论非交换弱 Orlicz-Lorentz 空间极大函数的不等式。