

Schedule

Wednesday August 7

Mingde Building 201 (明德楼201)

10.00 - 10.45 Xingxing Yao

10.50 - 11.35 Guangheng Xie

14.30 - 15.15 Xumin Wang

15.20 - 16.05 Bang Xu

16.10 - 16.55 Wei Liu

18.00 **Dinner** Xi Yuan Restaurant

Vector-valued inequalities for square functions

Wei Liu (刘伟) Wuhan University

Abstract: In this paper, we establish L_p -boundedness of vector-valued square functions with values in the Banach space satisfying martingale cotype q property. We characterize, in the vector-valued setting, the validity of the L_p -boundedness of square functions by the martingale cotype q property of the underlying Banach space. This work joint with Guixiang Hong.

Rosenthal's inequalities: Δ -norms and quasi-Banach symmetric sequence spaces

Guangheng Xie (谢广亨) Central South University

Abstract: Let X be a symmetric quasi-Banach function space with Fatou property and let E be an arbitrary symmetric quasi-Banach sequence space. Suppose that $(f_k)_{k \geq 0} \subset X$ is a sequence of independent random variables. We present a necessary and sufficient condition on X such that the quantity $\| \sum_{k=0}^n f_k \|_E \|_X$ admits an equivalent characterization in terms of disjoint copies of $(f_k)_{k=0}^n$ for every $n \geq 0$. We also consider the case of a Δ -normed symmetric function space X , defined via an Orlicz function Φ satisfying Δ_2 -condition. The work presented is a joint work with Yong Jiao, Fedor Sukochev and Dmitriy Zanin.

Linear combinations of composition operators on spaces of Dirichlet series

Xingxing Yao (姚兴兴) Wuhan Institute of Technology

Abstract: On the Hilbert space of Dirichlet series with square summable coefficients, we shall show that the linear combinations of any two linear composition operators are compact only when each one of them is compact. Moreover, such rigid behavior holds partially for some more general cases. Furthermore, we also consider the compactness of linear combinations of finitely many composition operators on the Banach space consisting of bounded Dirichlet series, which is the set of multipliers of the above Hilbert space.

Noncommutative weak (1,1) type estimate for a square function from ergodic theory

Bang Xu (徐邦) Wuhan University

Abstract: In this talk, we investigate the boundedness of a square function from ergodic theory on noncommutative L_p -spaces. The main result is a weak (1,1) type estimate of this square function. We also show the (L_∞, BMO) estimate, and thus strong (L_p, L_p) estimate by interpolation. The main novel difficulty lies in the fact that the kernel of this square function does not enjoy any regularity, which is crucial in showing such endpoint estimates for standard noncommutative Calderon-Zygmund singular integral operators. This is a joint work with Guixiang Hong.

Pointwise convergence of noncommutative Fourier series

Xuming Wang (汪旭敏) Universite de Franche-Comte

Abstract: This talk is about convergence of Fourier series for non-abelian groups and quantum groups. It is well-known that a number of approximation properties of groups can be interpreted as some summation methods and mean convergence of associated noncommutative Fourier series. Based on this framework, this work studies the refined counterpart of pointwise convergence of these Fourier series. We establish a general criterion of maximal inequalities for approximative identities of noncommutative Fourier multipliers. As a result we prove that for any countable discrete amenable group, there exists a sequence of finitely supported positive definite functions tending to 1 pointwise, so that the associated Fourier multipliers on noncommutative L_p -spaces satisfy the pointwise convergence for all $p > 1$. In a similar fashion, we also obtain results for a large subclass of groups (as well as discrete quantum groups) with the Haagerup property and weak amenability. We also consider the analogues of Fejér means and Bochner-Riesz means in the noncommutative setting. Our results in particular apply to the almost everywhere convergence of Fourier series of L_p -functions on non-abelian compact groups. On the other hand, we obtain as a byproduct the dimension free bounds of noncommutative Hardy-Littlewood maximal inequalities associated with convex bodies. As an ingredient, our proof also provides a refined version of Junge-Le Merdy-Xu's square function estimates for subordinate Poisson semigroups when $1 < p < 2$.