

Mathematics and CS Seminar

From the Littlewood-Paley-Stein inequality to the Burkholder-Gundy inequality

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Host: Jan Maas / Haonan Zhang

Recently, Quanhua Xu has shown the optimal orders of the Littlewood-Paley-Stein inequality and raised the problem about the optimal orders of the reverse Littlewood-Paley-Stein inequality. In a joint work with Zhendong Xu, we solve one part of Xu's open problem. In this talk, I will recall the history and recent developments of the Littlewood-Paley-Stein theory. Then I will show our proof by using the Burkholder-Gundy inequality. Our argument is based on the construction of a special symmetric diffusion semigroup associated with any given martingale such that its square function for semigroups is pointwise comparable with its square function for martingales. Our method also extends to the vector-valued and noncommutative setting.

Thursday, July 21, 2022 05:15pm - 06:15pm
Heinzel Seminar Room (I21.EG.101), Office Building West

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