



## 复旦大学数学科学学院 数学综合报告会

报告题目: Harnack inequality and long time asymptotics of unbounded additive functionals of regime-switching diffusion processes

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报告摘要: This work provides explicit conditions to establish the dimension-free Harnack inequalities respectively for state-independent and state-dependent regime-switching processes. Then such Harnack inequalities are applied to establish the hypercontractivity of the associated semigroup, and further to study the long time asymptotics of unbounded additive functionals of regime-switching processes. Much effort is devoted to overcoming the difficulty caused by the close interaction between the diffusion processes and the Markov chains in the setting of regime-switching processes.

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