Intrinsic Ultracontractivity of Symmetric Jump Processes on Unbounded Open Sets

Xin CHEN *Department of Mathematics, Shanghai Jiao Tong University, China*,
E-mail: chenxin_217@hotmail.com
Panki Kim *Department of Mathematics, Seoul National University, South Korea*, E-mail: pkim@snu.ac.kr
Jian Wang *School of Mathematics and Computer Science, Fujian Normal University, China*,
E-mail: jianwang@fjnu.edu.cn

KEY WORDS: Symmetric jump process, Dirichlet form, intrinsic ultracontractivity, intrinsic super Poincaré inequality

MATHEMATICAL SUBJECT CLASSIFICATION: 60G51, 60G52, 60J25, 60J75

Abstract: We will study some criterions of the intrinsic ultracontractivity for a large class of symmetric jump process killed on exiting an unbounded open set, including the stable process and truncated stable process killed on exiting a horn-shaped region. We will provide some examples to show that our criterions are sharp in some sense, and for the horn-shape region, a two-side estimate for the associated ground state will also be given. The talk is based on a joint work with Panki Kim and Jian Wang.