HEAT KERNEL AND SEMIGROUP ESTIMATES FOR SUBLAPLACIANS WITH DRIFT ON LIE GROUPS

NICK DUNGEY

Abstract

Let $G$ be a Lie group. The main new result of this paper is an estimate in $L^2(G)$ for the Davies perturbation of the semigroup generated by a centered sublaplacian $H$ on $G$. When $G$ is amenable, such estimates hold only for sublaplacians which are centered. Our semigroup estimate enables us to give new proofs of Gaussian heat kernel estimates established by Varopoulos on amenable Lie groups and by Alexopoulos on Lie groups of polynomial growth.

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