

Kolmogorov kernel estimates for the Ornstein-Uhlenbeck operator

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Abstract. Replacing the Gaussian semigroup in the heat kernel estimates by the Ornstein-Uhlenbeck semigroup on \mathbb{R}^d , we define the notion of Kolmogorov kernel estimates. This allows us to show that under Dirichlet boundary conditions Ornstein-Uhlenbeck operators are generators of consistent, positive, (quasi-)contractive C_0 -semigroups on $L^p(\Omega)$ for all $1 \leq p < \infty$ and for every domain $\Omega \subseteq \mathbb{R}^d$. For exterior domains with sufficiently smooth boundary a result on the location of the spectrum of these operators is also given.

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