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Vector Fields. Heat Kernels And

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In this work the authors deal with linear second order partial differential operators of the following type $H = \partial_t - L = \partial_t - \sum_{i,j=1}^q a_{ij}(t,x) X_i X_j - \sum_{k=1}^q a_k(t,x) X_k - a_0(t,x)$ where X_1, X_2, \dots, X_q is a system of real Hörmander's vector fields in some bounded domain $\Omega \subseteq \mathbb{R}^n$, $A = \{a_{ij}(t,x)\}_{i,j=1}^q$ is a real symmetric uniformly positive definite matrix such that $\lambda^{-1} |\xi|^2 \leq \sum_{i,j=1}^q a_{ij}(t,x) \xi_i \xi_j \leq \lambda |\xi|^2$ for all $\xi \in \mathbb{R}^q$, $x \in \Omega, t \in (T_1, T_2)$ for a suitable constant $\lambda > 0$ and for some real numbers $T_1 < T_2$.

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