

The Kato square root estimate for parabolic operators

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Abstract:

In this talk, we present the following new result established in collaboration with M. Egert and K. Nyström. Let $A(x, t)$ be an $n \times n$ matrix on \mathbb{R}^{n+1} with complex-valued, bounded, measurable entries, which satisfy a uniform accretivity condition. Theorem: the operator $L = \partial_t - \operatorname{div}_x A(x, t) \nabla_x$ can be defined as a maximal-accretive operator in $L^2(\mathbb{R}^{n+1})$ and satisfies the Kato square root estimate: its square root has domain equal to that of the defining form. Note that we allow measurable t dependence on the coefficients.