MAXIMAL PARABOLIC REGULARITY FOR DIVERGENCE-FORM OPERATORS WITH NEUMANN BOUNDARY CONDITIONS IN ROUGH DOMAINS

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Let $\Omega \subseteq \mathbb{R}^n$ be open and A be a complex uniformly accretive matrix function on Ω. Consider the divergence-form operator $L^A = -\div (A\nabla)$ with Neumann boundary conditions in Ω. We show that the associated parabolic problem $u'(t)+L^A u(t) = f(t)$, $u(0) = 0$ has maximal regularity in $L^p(\Omega)$, for all $p \in (1, +\infty)$ such that A satisfies an algebraic condition called p-ellipticity. The given range of exponents is optimal for this class of operators.

The talk is based on a work in progress with Oliver Dragičević