

Resolvent estimates for mixed-order systems

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For boundary value problems which are parabolic in the sense of Petrovskij, uniform a priori estimates are well-known. This gives results on the spectrum of the L^p -realization of the boundary value problem and estimates for the norm of the resolvent. The situation is more complicated if the operator is studied in Sobolev spaces of higher order instead of L^p or if we have a mixed-order (Douglis-Nirenberg) system of operators. In the talk we discuss uniform a priori estimates in parameter-dependent norms, resolvent estimates and the generation of an analytic semigroup for mixed-order systems in higher order Sobolev spaces. The operators considered are differential operators defined in the whole space or in bounded domains. In the whole space, we obtain even the existence of a bounded H^∞ -calculus for general mixed-order systems of pseudodifferential operators.