Oberseminar
Analysis und Theoretische Physik

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Explicit and uniform estimates for second order divergence operators on L^p spaces

It is the aim of the talk to give – aside the Beurling/Deny approach – a consistent definition of second order divergence operators on L^p spaces, even if the underlying domain is highly non-smooth, the boundary conditions are mixed and the coefficient function is real, bounded and elliptic – but not necessarily symmetric. In order to do this, one first proves that, under minimal assumptions, the L^2 resolvent transports the spaces L^p with sufficiently large p into L^∞. This shows that, for these p, the part of the L^2 operator in L^p possesses a domain which embeds into L^∞. Having this at hand, one can modify ideas of Cialdea/Maz'ya to include the numerical range in a certain sector. This leads to suitable resolvent estimates. Moreover, we prove that the resulting semigroup is contractive and analytic with explicitly determined holomorphy angle. Finally, a holomorphic calculus is established with (half) angle smaller than $\pi/2$. This gives even maximal parabolic regularity via the Dore/Venni theorem.

Dienstag, 28.01.2020, 15:00 Uhr, Raum c311
Hauptgebäude der Universität

Über Ihren Besuch würden sich freuen:

Prof. Dr. Wolfram Bauer
Prof. Dr. Joachim Escher
Prof. Dr. Elmar Schrohe
Prof. Dr. Christoph Walker