The Dirichlet-to-Neumann operator on $C^{1+\kappa}$-domains

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We present some recent results on kernel bounds for the semigroup generated by the Dirichlet-to-Neumann operator when the underlying operator has Hölder continuous coefficients and the domain has a $C^{1+\kappa}$-boundary. The proof depends on Gaussian bounds for derivatives of the semigroup kernel of an elliptic operator with Dirichlet boundary conditions. As a consequence the Dirichlet-to-Neumann semigroup is holomorphic on the right half-plane on L^1. Moreover, it is also strongly continuous on the space of continuous functions on the boundary and holomorphic on the right half-plane.

This is joint work with El Maati Ouhabaz.