The Dirichlet-to-Neumann operator on rough domains

T. ter Elst

We consider a bounded connected open set $\Omega \subset \mathbb{R}^d$ whose boundary Γ has a finite $(d-1)$-dimensional Hausdorff measure. Then we define the Dirichlet-to-Neumann operator D_0 on $L_2(\Gamma)$ by form methods. The operator $-D_0$ is self-adjoint and generates a contractive C_0-semigroup $S = (S_t)_{t>0}$ on $L_2(\Gamma)$. We show that the asymptotic behaviour of S_t as $t \to \infty$ is related to properties of the trace of functions in $H1(\Omega)$ which Ω may or may not have.

The talk is based on a joint work with W. Arendt.