

On boundary triples associated to quadratic forms

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We define a boundary triple associated to a quadratic form. As motivation we think of the Laplacian on a manifold with boundary. We derive the corresponding Dirichlet-to-Neumann operator and Krein's resolvent formula.

Our focus here is not to characterise all self-adjoint extensions of a given symmetric operator, but to use as much as possible intrinsic quantities. For example, we define a natural norm on the boundary Hilbert space associated to the Dirichlet-to-Neumann operator. Using first order objects only, we can control parameter-depending spaces.

As an application, we define resonances (poles of a meromorphic continuation of the resolvent) and show the convergence of resonances for certain parameter depending spaces ("graph-like manifolds" converging to a metric graph).