

Boundary pairs and Dirichlet-to-Neumann operators

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We present a concept for defining the Dirichlet-to-Neumann (DtN) operator in a purely functional-analytic framework starting with a closed form in a Hilbert space and a bounded operator from the form domain into an auxiliary Hilbert space. The basic example we have in mind is the energy form on a manifold with (possibly non-smooth) boundary. We present Krein-like resolvent formulas, spectral relations between the associated "Neumann"-Operator and the DtN operator and illustrate the ideas with many examples.