

Dirichlet-to-Neumann operators on differential forms

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The Dirichlet-to-Neumann operator on a compact Riemannian manifold with boundary provides a link between the Dirichlet and Neumann data of harmonic functions. However, for differential forms there is no natural way to separate the boundary data into Dirichlet and Neumann parts. In this talk we will review several possible definitions of the Dirichlet-to-Neumann map for differential forms and discuss some eigenvalue estimates. In particular, it turns out that the eigenvalue problem on forms of a certain degree shares a lot of important properties with the classical Steklov eigenvalues on surfaces, and can be regarded as its higher dimensional analog.