

Abstract
Surface potentials and elliptic boundary value problems
Wolfgang L. Wendland (University of Stuttgart)

Beginning with the classical boundary potentials and boundary integral equations for the Dirichlet and Neumann problems with the Poisson equation, we give a brief overview of the history of these methods in relation to different assumptions for the domain's boundary and function spaces involved. Then the introduction of energy spaces and coerciveness properties lead to strongly elliptic problems with coercive and strongly elliptic boundary integral equations. These methods can still be applied to the classical Gauss problem of potential theory as well as to stationary Stokes and Brinkman equations although the latter are not strongly elliptic but elliptic. The lecture ends with an outlook to more general regularity properties and to problems on manifolds.