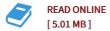# Layer Potentials, the Hodge Laplacian and Global Boundary Problems in Nonsmooth Riemannian Manifolds (Paperback)

By Mauris Mitrea, Michael Taylor

American Mathematical Society, United States, 2001. Paperback. Condition: New. UK ed.. Language: English . Brand New Book. The general aim of the present monograph is to study boundary-value problems for second-order elliptic operators in Lipschitz sub domains of Riemannian manifolds. In the first part (ss1-4), we develop a theory for Cauchy type operators on Lipschitz submanifolds of co dimension one (focused on boundedness properties and jump relations) and solve the L^p-Dirichlet problem, with p close to 2, for general second-order strongly elliptic systems. The solution is represented in the form of layer potentials and optimal non tangential maximal function estimates are established.This analysis is carried out under smoothness assumptions (for the coefficients of the operator, metric tensor and the underlying domain) which are in the nature of best possible. In the second part of the monograph, ss5-13, we further specialize this discussion to the case of Hodge Laplacian $ Delta:=-d delta- delta d$. This time, the goal is to identify all (pairs of) natural boundary conditions of Neumann type. Owing to the structural richness of the higher degree case we are considering, the theory developed here encompasses in a unitary fashion many basic PDE s of mathematical physics. Its scope...

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