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THO 135

Inverse boundary value problems for elliptic operators

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In an inverse boundary value problem one is interested in determining the internal properties of a medium by making measurements on the boundary of the medium. In mathematical terms, one wishes to recover the coefficients of a partial differential equation inside the medium from the knowledge of the Cauchy data of the solutions on the boundary. These problems have numerous applications, ranging from medical imaging to exploration geophysics. We shall discuss some recent progress in the analysis of inverse problems for elliptic equations, starting with the celebrated Calderon problem. The case of inverse problems with rough coefficients and with measurements performed only on a portion of the boundary will also be addressed.