

TO HEAR THE SHAPE OF A DRUM BY SOLVING A NONLINEAR BOUNDARY VALUE PROBLEM

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26/06/2018

A new type of relationship between an inverse spectral problem for N-dimensional Schrödinger equation and nonlinear boundary value problems will be discussed. It turns out that solving an inverse spectral problem allows finding a solution to the nonlinear boundary value problem and thereby to obtain new results on the existence and uniqueness of the solution for the nonlinear boundary value problem. On the other hand, the theory of nonlinear equations allows us to obtain new results for the inverse spectral problem.

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