

The Method of Separation of Variables for Nonlocal Contact Problem for Some Stationary Linear Partial Differential Equations

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Nonlocal boundary and initial-boundary problems represent very interesting generalizations of classical problems. At the same time, they quite often arise during the creation of mathematical models of real processes and the phenomena in physics, engineering, ecology, etc.

In the present report, the boundary problem with nonlocal contact condition is investigated for stationary linear partial differential equations. For the solution of these problems a method of separation of variables (also known as the Fourier method) is considered. Existence and uniqueness of regular solution is proved.