

On Construction of Solutions for Some Equations of Mathematical Physics with Non-Local Conditions

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ABSTRACT

During the application of mathematical modeling to various phenomena of physics, biology, ecology and many other areas, researchers often come to statement of problems with non-classical initial and boundary conditions, having some kind of relationship between the values of unknown function on boundary and inside of given domain. Such non-classical problems usually are called non-local boundary or initial-boundary value problems.

Methods of explicit solving of non-local problems in time and space in case of special differential equations and areas will be stated in the current course of lectures. For numerical solution of non-classical problems the synthesis of analytical methods with decomposition ones will be considered.