ABSTRACT

Thesis: 68 p., 1 appendix, 9 sources.

DIFFERENTIAL EQUATIONS, PARABOLIC DIFFERENTIAL EQUATION, HEAT EQUATION, LAPLACE OPERATOR, VARIANT MEASURE, INITIAL VALUE PROBLEM, DIVERGENCE WITH RESPECT TO A MEASURE.

The theme of this work is the initial value problem set for the heat equation in the case of a variant measure.

The object of study is the well-posed initial value problem for the parabolic differential equation with Laplace operator with respect to a measure.

The subjects of study are differential equations in finite Hilbert spaces, spaces with variant finite measure, divergence and Laplace operators in such spaces.

The purpose of this work is to build the heat equation in a space with finite variant measure, to get a solution of the initial vaule problem for some partial cases as well as the general fundamental solution (over finite and infinite domains), to prove uniqueness and existence of the solution of the corresponding initial value problem, to analyse the conditions the solution of the initial value problem exists and is unique under.