MATHEMATICA

Arzu G.ALIYEVA

INVESTIGATION OF GENERALIZED SOLUTION OF ONE-DIMENSIONAL MIXED PROBLEM FOR A CLASS OF FOURTH ORDER SEMI-LINEAR EQUATIONS OF SOBOLEV TYPE. I.

Abstract

The paper deals with the existence and uniqueness of the generalized solution of one-dimensional mixed problem with Rickier type conditions for fourth order semi-linear equations of Sobolev type. The notion of the generalized solution of the mixed problem under consideration is introduced. After applying the Fourier method, the solution of the input problem is reduced to the solution of some denumerable system of nonlinear integral equations with respect to Fourier unknown coefficients of the desired solution. Then the global uniqueness, small existence and global existence theorems of the generalized solution of the mixed problem under consideration are proved.