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ON FREDHOLM PROPERTY OF A BOUNDARY
VALUE PROBLEM FOR A FIRST ORDER
EQUATION WITH GENERAL BOUNDARY
CONDITIONS

Abstract

In the paper, we consider a boundary value problem for a loaded integro-differential equation. The differential part of the equation is an elliptic type equation of first order. In addition to integro-differential terms, the considered equation contains boundary values in the form of loading. Considering that the differential part of the equation is a Cauchy-Riemann equation (a first order equation), it is not possible to give local boundary conditions so that, the boundary were a support for a boundary condition (may be there is no solution). Therefore, non-local boundary conditions are considered. Without loss of generality, we add global terms to boundary conditions (in the form of integral).