Rodionova, I. N.; **Dolgopolov, V. M.**
A similar for Δ_1 problem for the second-order hyperbolic equation in the 3D Euclidean space. (Russian. English summary) Zbl 1413.35288

Summary: The second-order hyperbolic type equation is considered in the 3D Euclidean space. Boundary value problem is posed in the infinite cylindrical region bounded by the characteristic surfaces of this equation with data on the related characteristic surfaces of the equation and with conditions mates on the internal non-descriptive plane. The solution is also assumed to be zero when $z \to \infty$ with derivative by variable z. By the Fourier transform method the problem reduced to the corresponding planar problem Δ_1 for hyperbolic equation, which in characteristic coordinates is the generalized Euler-Darboux equation with a negative parameter. Authors obtained estimates of the plane problem solution and its partial derivatives up to the second order inclusive. This, in turn, provided an opportunity to impose the conditions to given boundary functions ensuring the existence of a classical solution of the problem in the form of the Fourier transform.

MSC:

35L10   Second-order hyperbolic equations

Cited in **1** Document

Keywords:

integral equations; boundary value problems; second-order hyperbolic type equations

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