Myshkis, A. D.; **Filimonov, A. M.**

On the global continuous solvability of the mixed problem for one-dimensional hyperbolic systems of quasilinear equations. (English. Russian original) Zbl 1152.35071

Differ. Equ. 44, No. 3, 413-427 (2008); translation from Differ. Uravn. 44, No. 3, 394-407 (2008).

Summary: We consider a hyperbolic system of quasilinear equations written in Riemann invariants for the case of one spatial variable. For this system, we obtain sufficient conditions for the global generalized continuous solvability of the mixed problem in the class of functions monotone with respect to x for arbitrary t and with respect to t for $x = 0$. In contrast to earlier studies, we assume that the boundary conditions may depend not only on time but also on the unknown functions.

MSC:

35L50 Initial-boundary value problems for first-order hyperbolic systems
35L60 First-order nonlinear hyperbolic equations
35D05 Existence of generalized solutions of PDE (MSC2000)

Keywords:

nonlinear boundary conditions; Riemann invariants; one spatial variable

Full Text: DOI

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