MICRO-HYPERBOLIC SYSTEMS

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Introduction

The so-called "Cauchy Problem" has a very long and classical story, from J. Hadamard [7], I. G. Petrovski [22], J. Leray [20], L. Gårding [6], ... to, for example, the last results of Ivrii and Pietkov [13] or L. Hörmander [12], but we will not review here.

The difficulty treated by the last authors lies in the fact that the principal symbol of the operator is not of simple characteristic, and the lower order symbols have an essential role (Levi conditions). However, we know by [4] that with the use of hyperfunctions the situation is simple: "hyperbolicity" is given by the principal symbol. This fact allows us to treat the case of (overdetermined) systems. In this paper, we treat the initial value problem and the problem of propagation for hyperfunction or microfunction solutions of (micro-)hyperbolic systems. The hyperbolicity is just a geometrical property of the complex characteristic variety of the system.

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