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Quasi-rectifiable Lie algebras and Riemann k-wave solutions of hydrodynamic-type systems

A new approach to construction of multiple Riemann wave solutions of a hyperbolic system of partial differential equations is presented. For this purpose a concept of families of quasi-rectifiable vector fields is introduced and the related quasi-rectifiable Lie algebras are employed. The procedure for obtaining k-wave solutions is illustrated by examples of fluid dynamics systems.