

# Symmetric hyperbolic systems in algebras of generalized functions and distributional limits

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We study existence, uniqueness, and distributional aspects of generalized solutions to the Cauchy problem for first-order symmetric (or Hermitian) hyperbolic systems of partial differential equations with Colombeau generalized functions as coefficients and data. The proofs of solvability are based on refined energy estimates on lens-shaped regions with spacelike boundaries. We obtain several variants and also partial extensions of previous results and provide aspects accompanying related recent work by C. Garetto and M. Oberguggenberger.

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