

On the numerical solution of hyperbolic equations with singular source terms

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Abstract: A numerical study is presented of hyperbolic equations having singular source terms, singular in the sense that within the spatial domain the source is defined by a Dirac delta function. Solutions of such problems will have discontinuities which form an obstacle for standard numerical methods. In this study, a fifth order flux implicit WENO method with non-uniform meshes is investigated for approximate solutions of hyperbolic equations having singular source terms. Numerical examples are provided.

Keywords: WENO method, non-uniform mesh, hyperbolic equations with singular source terms.

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