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*Discontinuous Galerkin method for hyperbolic equations involving  $\delta$ -functions.*

In this talk, we apply discontinuous Galerkin (DG) method for hyperbolic equations involving  $\delta$ -functions. In general, the numerical solutions are highly oscillatory near the singularities, which we refer to as the pollution region. We first analyze the size of the pollution region and the rate of convergence outside for some model equations, then apply the method to random algorithms and pressureless Euler equations to show the good performance of the DG method. (Received September 11, 2012)