1096-VL-2693 **Michael Herty**, **Alexander Kurganov** and **Dmitry Kurochkin*** (dkurochk@tulane.edu), 1519 Lowerline St., New Orleans, LA 70118. *Numerical Method for Optimization Problems Governed by Hyperbolic Systems of Conservation Laws.*

We develop novel numerical optimization methods for constrained problems governed by nonlinear hyperbolic systems of conservation laws in one space dimension. The optimization problem is equivalent to minimizing an objective cost functional and can be formally viewed as an optimality system of the hyperbolic problem and its adjoint problem. The method requires to numerically solve the hyperbolic system forward in time and a corresponding linear adjoint system backward in time. Numerical results for the control problems constrained by either the Euler equations of gas dynamics or isothermal gas dynamics equations are presented. Both smooth and discontinuous prescribed terminal states are considered. The designed method has been also tested on the scalar inviscid Burgers equation. Convergence properties of the proposed methods are discussed. (Received September 18, 2013)