1084-35-324 **Dmitry Kurochkin*** (dkurochk@tulane.edu), 6823 St. Charles Ave, New Orleans, LA 70118, and **Alexander Kurganov** (kurganov@tulane.edu), 6823 St. Charles Ave, New Orleans, LA 70118. *Numerical Method for Constrained Optimization Problems Governed by Systems of Nonlinear Hyperbolic PDEs.*

We develop a numerical methods for optimization problems governed by systems of nonlinear hyperbolic PDEs. The optimization problem is equivalent to minimizing an objective functional subject to the system of conservation or balance laws. The iterative scheme is based on numerical solution of the system of conservation laws forward in time and the corresponding system of adjoint equations backward in time. While high-resolution schemes for systems of nonlinear conservation and balance laws are readily available, solving the nonconservative adjoint system of linear PDEs with discontinuous coefficients is an extremely challenging task. In this work, we focus on developing of an accurate scheme for the backward equation in the context of the constrained optimization problem. The optimization method has been applied to the one-dimensional system of Euler Equations of gas dynamics. (Received September 04, 2012)