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Nicolae Tarfulea* (tarfulea@calumet.purdue.edu), Department of Mathematics, Purdue University Calumet, 2200 169th Street, Hammond, IN 46376. *On the initial-boundary value problem for constrained hyperbolic systems.*

In this talk we address the initial-boundary value problem for first order hyperbolic systems defined on bounded domains and subject to certain constraints. The main goal is to provide well-posed boundary conditions which are also consistent with the constraints, that is, if the solution satisfies the constraints at the initial time (i.e., the initial data is compatible with the constraints), then it satisfies the constraints for all time. Finding such boundary conditions is not an easy task, however it is essential for computing accurate numerical solutions. This work has been motivated by the necessity to find well-posed constraint-preserving boundary conditions for known systems of differential equations, such as Einstein's equations in various first order hyperbolic formulations. (Received August 14, 2006)