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*Extended Divergence-Measure Fields, Generalized Gauss-Green Formula,
and Nonlinear Transport Equations*

In this talk we will first describe some natural connection between weak entropy solutions of nonlinear transport equations and a class of extended vector fields, so called extended divergence-measure vector fields. Then we will introduce the generalized Gauss-Green formula, the normal traces, and the product rule, among others, for such extended divergence-measure vector fields. Finally, we will discuss its applications to solving various nonlinear problems in nonlinear transport equations and related partial differential equations.