Sam G. Krupa* (skrupa@math.utexas.edu) and Alexis F. Vasseur. Pushing Forward the Theory of Well-Posedness for Systems of Conservation Laws Verifying a Single Entropy Condition.

For hyperbolic systems of conservation laws in one space dimension, the best theory of well-posedness is restricted to solutions with small total variation (Bressan et al. 2000). Looking to expand on this theory, we push in new directions. One key difficulty is that for many systems of conservation laws, only one nontrivial entropy exists. In 2017, in joint work with A. Vasseur, we proved uniqueness for the solutions to the scalar conservation laws which verify only a single entropy condition. Our result was the first result in this direction which worked directly on the conservation law. Further, our method was based on the theory of shifts and a-contraction developed by Vasseur and his team. These theories are general theories and apply also to the systems case, leading us to hope the framework we built for the scalar conservation laws will apply to systems. In this talk, I review the current progress on using the theory of shifts and a-contraction to push forward the theory of well-posedness for systems of conservation laws in one space dimension. This is joint work with A. Vasseur. (Received July 30, 2019)