



# 偏微分方程及其应用中心

## 学术报告

**报告题目:** **Minimal Entropy Conditions for Scalar Conservation Laws with General Convex Fluxes**

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**时间:** 2023.09.27(周三), 上午 09:00--10:00

**地点:** 南楼 613

**摘要:** We are concerned with the minimal entropy conditions for one-dimensional scalar conservation laws with general convex flux functions. For such scalar conservation laws, we prove that a single entropy-entropy flux pair  $(\eta(u), q(u))$  with  $\eta(u)$  of strict convexity is sufficient to single out an entropy solution from a broad class of weak solutions in  $L_{loc}^\infty$  that satisfy the inequality:  $\eta(u)_t + q(u)_x \leq \mu$  in the distributional sense for some non-negative Radon measure  $\mu$ . Furthermore, we extend this result to the class of weak solutions in  $L_{loc}^p$ , based on the asymptotic behavior of the flux function  $f(u)$  and the entropy function  $\eta(u)$  at infinity. The proofs are based on the equivalence between the entropy solutions of one-dimensional scalar conservation laws and the viscosity solutions of the corresponding Hamilton-Jacobi equations, as well as the bilinear form and commutator estimates as employed similarly in the theory of compensated compactness. This is a joint work with Gui-Qiang G. Chen.