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## Stability of Approximate Solutions for Systems of Conservation Laws

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Consider a strictly hyperbolic  $n \times n$  system of conservation laws in one space dimension:

$$u_t + f(u)_x = 0. \quad (1)$$

For small  $BV$  initial data, the global existence, uniqueness and stability of entropy weak solutions is now well known.

Various methods for constructing approximate solutions have been considered in the literature. In particular:

- (i) Vanishing viscosity
- (ii) Relaxation approximations
- (iii) Numerical schemes

The talk will address the problem of obtaining a priori  $BV$  bounds, stability and convergence results for these approximate solutions. We shall review the basic ideas in the proof valid for vanishing viscosity approximations, and discuss what can be done in the case of solutions computed by finite difference schemes.