

Well-Posedness for Hyperbolic Systems of Conservation Laws

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Abstract

We consider strictly hyperbolic systems of conservation laws $u_t + f(u)_x = 0$ and we study the general solution of Riemann problem. Then, we present three different approaches to construct solutions of the Cauchy problem: front-tracking method, Glimm Scheme and vanishing viscosity approximation. The limit solutions of these approximations coincide with the trajectories of the Standard Riemann Semigroup, as shown in the work of A. Bressan.

References

- [1] A. Bressan, *Hyperbolic Conservation Laws: an Illustrated Tutorial*, (2013).
- [2] A. Bressan, *Hyperbolic Systems of Conservation Laws: the one-dimensional Cauchy Problem*, Oxford Univeristy Press, (2000).
- [3] A. Bressan, *Sistemi iperbolicici di leggi di conservazione*, Bollettino dell'Unione Matematica Italiana (2000).