

SIMPLE TECHNIQUE FOR EVALUATING RESIDUAL TERM OF FINITE VOLUME SCHEMES

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(Received: 09.01.05; accepted: 05.06.05)

Abstract

We develop here special technique for evaluating residual in finite volume schemes for nonlinear scalar conservation laws. Traditionally for evaluating of similar terms BV or weak BV type estimates are needed, or some special requirement on regularity of mesh refinement procedure is needed in order to get the residual convergent to zero. The technique we introduce here is called simple because it uses just uniform L^∞ estimate on approximate solutions constructed by means of kinetic finite volume schemes. Coupling this technique with abstract convergence theorem introduced by Botchorishvili, Perthame, Vasseur [3] we prove convergence of the explicit kinetic finite volume schemes.

Key words and phrases: hyperbolic conservation laws, finite volume schemes, residual term, weak* convergence.

AMS subject classification: 65M12