**Title:** On the stability of MUSCL-Hancock scheme

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## Abstract:

In this talk we consider the stability conditions for the single-stage MUSCL-Hancock scheme: 1) the CFL number is (\sqrt{3}-1)/2 which admits almost 73 percent of the time step of classical two-stage MUSCL scheme and hence yields a considerable speed-up; 2) The preliminary TVD reconstruction is modified when necessary by a bound-preserving slope limiter which keeps the higher resolution. The application include 1d and 2d scalar problem, incompressible flow and nonlinear systems. Numerical examples verify the sharpness of these settings and demonstrate the robustness of the scheme for different type of problems

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