



Oberseminar Mathematische Strömungsmechanik

Institut für Mathematik der Julius-Maximilians-Universität Würzburg

Hyperbolic equations - structure preserving methods & other topics

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High order strong stability preserving and asymptotic preserving multi-derivative IMEX Runge-Kutta methods

Abstract:

In this work we present a class of high order strong stability preserving (SSP) implicit-explicit (IMEX) multi-derivative Runge-Kutta schemes where the time-step restriction is independent of the stiff term. The SSP condition ensures that these methods are positivity preserving, and we present sufficient conditions under which such methods are also asymptotic preserving when applied to a range of problems, including a hyperbolic relaxation system, the Broadwell model, and the Bhatnagar-Gross-Krook (BGK) kinetic equation. We present numerical results to support the theoretical results, on a variety of problems. This is joint work with S. Gottlieb, Z. Grant, and R. Shu.

via Zoom video conference (request the Zoom link from klingen@mathematik.uni-wuerzburg.de)

Friday, Nov. 25 at 3 pm CET

Zu diesem Vortrag sind Sie herzlich eingeladen.

gez. Christian Klingenberg