Oberseminar Mathematische Strömungsmechanik

Institut für Mathematik der Julius-Maximilians-Universität Würzburg

Hyperbolic equations - structure preserving methods & other topics

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Arbitrary order structure preserving discontinuous Galerkin methods for hyperbolic balance laws

Abstract:

Euler equations under gravitational fields and shallow water equations with a non-flat bottom topography are two prototype hyperbolic conservation laws with source term (also named hyperbolic balance laws). They both have various applications in many fields. In this presentation, we will talk about arbitrary order structure preserving discontinuous Galerkin finite element methods which can exactly capture the non-trivial steady state solutions of these models, and at the same time maintain the non-negativity of some physical quantities. Numerical tests are provided to verify the well-balanced property, positivity-preserving property, high-order accuracy, and good resolution for both smooth and discontinuous solutions.

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

Friday, Jan. 29 at 3 pm GMT+1

Zu diesem Vortrag sind Sie herzlich eingeladen.

gez. Christian Klingenberg