

Lothar-Collatz-Seminar

Wed, 22. Jun · 4:15 pm · **Geom 142**

Michel Bänsch (Uni Hamburg)

A linear low effort stabilization method for the Euler equations using Discontinuous Galerkin Methods

Abstract:

In this talk, I present a novel and simple yet intuitive approach to the stabilization problem for the numerically solved Euler equations with gravity source term relying on a low-order nodal Discontinuous Galerkin Method (DGM). Instead of assuming isothermal or polytropic solutions, we only take a hydrostatic balance as a given property of the flow and use the hydrostatic equation to calculate a hydrostatic pressure reconstruction that replaces the gravity source term.

Without stabilization, simulations do not yield results that resemble correct physical behavior while the results with stabilization model the fluid flow more accurately. This novel scheme is a low cost approach to stabilize the Euler equations while not limiting the flow in any way other than it being in hydrostatic balance.

For further information please contact

Dr. Claus Goetz (claus.goetz@uni-hamburg.de), or visit
www.c3s.uni-hamburg.de/news-events/seminar-c3s.html