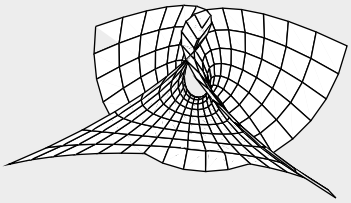

Oberseminar Mathematische Strömungsmechanik

Institut für Mathematik der Julius-Maximilians-Universität Würzburg

Structure preserving numerical methods for hyperbolic equations

Nicolas Crouseilles

INRIA, Univ. Rennes, France

Splitting methods for rotations: application to Vlasov equations

Abstract:

In this talk, a splitting strategy is introduced to approximate two- dimensional rotation motions. Unlike standard approaches based on directional splitting which usually lead to a wrong angular velocity and then to large error, the splitting studied here turns out to be exact in time. Combined with spectral methods, the so-obtained numerical method is able to capture the solution to the associated partial differential equation with a very high accuracy. Then, the method is used to design highly accurate time integrators for Vlasov type equations.

Finally, several numerical illustrations and comparisons with methods from the literature are discussed.

This is a joint work with Joackim Bernier (CNRS, University Nantes) and Fernando Casas (University Jaume I).

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

Tuesday, Nov. 12 at 9:30 am

Zu diesem Vortrag sind Sie herzlich eingeladen.

gez. Christian Klingenberg