



# Oberseminar Mathematische Strömungsmechanik

Institut für Mathematik der Julius-Maximilians-Universität Würzburg

**Hyperbolic equations - structure preserving methods & other topics**

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## Entropy and admissibility conditions for solutions of the Navier Stokes equation

*Abstract:*

Turbulence is perhaps the major unsolved problem of classical physics

I. A specific version of this problem is to show that the solutions of the Navier-Stokes equations are smooth (one of the Millennium problems).

II. A sub problem is to establish admissibility conditions for solutions of the Euler and Navier-Stokes equations.

Results of Scheffer and of Buckmaster and Vicol show that nonunique and nonphysical solutions of the Navier-Stokes and Euler equations exist.

I will present three results:

(a) Solution of problem II

(b) Show the relevance of this solution to problem I

(c) Show the close link between turbulence studies and quantum field theory including constructive quantum field theory in 4 space time dimensions

The results presented are joint work with Daniel Lazarov, Gui-Qiang Chen, Hamid Said, Jarret Petrillo and Min-Choel Lee.

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

Friday, April 22, 2022 at 3 pm CET

Zu diesem Vortrag sind Sie herzlich eingeladen.

*gez. Christian Klingenberg*