



Oberseminar Mathematische Strömungsmechanik

Institut für Mathematik der Julius-Maximilians-Universität Würzburg

Hyperbolic equations - structure preserving methods & other topics

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Global regularity and emergent behavior of multi-dimensional Euler alignment system

Abstract:

We study the hydrodynamic description of alignment dynamics. It is known that such Euler alignment systems must flock, namely, the large time behavior of the velocity field approaches a limiting “flocking” velocity, provided the solutions remain globally smooth. To address the question of global regularity, we derive a critical threshold condition in the phase space of initial configurations which guarantees global regularity. It is known that global smooth solutions exist in one and two spatial dimensions, subject to sub-critical initial data. Here, we settle the question of existence for arbitrary dimension. The proof is based on identifying a proper invariant regions.

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

Friday, Mar. 11 at 3 pm CET

Zu diesem Vortrag sind Sie herzlich eingeladen.

gez. Christian Klingenberg