



# Oberseminar Mathematische Strömungsmechanik

Institut für Mathematik der Julius-Maximilians-Universität Würzburg

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

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## Divergence-free DG schemes for hyperbolic problems

*Abstract:*

We discuss an approach for constructing DG methods for hyperbolic problems which automatically ensures the divergence-free condition. The approximation is based on the use of Raviart-Thomas polynomial spaces for approximating vector fields. The methods require multi-dimensional Riemann solvers to ensure the divergence-free property. We will discuss HLL-type multi-dimensional Riemann solvers to estimate the electric field at vertices which are consistent with the 1-D Riemann solvers. When limiters are used, the divergence-free property may be lost and it is recovered by a divergence-free reconstruction step. We show the performance of the method on a range of test cases up to fourth order of accuracy.

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

Friday, Feb.. 12 at 3 pm GMT+1

Zu diesem Vortrag sind Sie herzlich eingeladen.

*gez. Christian Klingenberg*