

NEWSLETTER

of the Work Group Mathematical Fluid Mechanics

Newsletter no. 6 (2024)

Paper with Junming Duan submitted

The article *Junming Duan, Wasilij Barsukow, Christian Klingenberg: "Active flux methods for hyperbolic conservation laws - flux vector splitting and bound-preservation: one-dimensional case"* has been submitted for publication.

Various limiting strategies for the Active Flux method are introduced leading to stable simulations of flows with strong shocks.

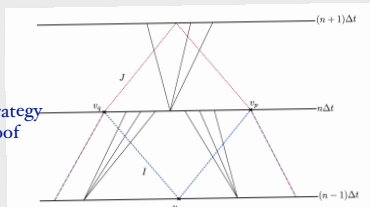
Paper with Rony Touma submitted

The paper *Rony Touma, Elissa Malaeb, Christian Klingenberg: "Unstaggered CWENO with the subtraction method for the shallow water equations"* was submitted to a journal. Here a third order well-balanced central scheme is introduced.

Simon Krotsch submitted his Bachelor thesis

Sebastian Krotsch submitted his Bachelor thesis *"Large Time Solutions for Systems of One-Dimensional Hyperbolic Equations"*.

He gives a readable account of the seminal theorem of Glimm, where existence of solutions to 1-d systems of conservations laws is proven.



the "diamond" strategy in Glimm's proof

Claudius Birke defended his thesis successfully

On May 10 *Claudius Birke* successfully defended his PhD thesis. After his half hour lecture, his examiners were Fritz Röpke (Heidelberg), Komla Domelevo and myself. He received a very good grade for the whole defense. Congratulations! - For the remainder of the day he celebrated with the participants.

Claudius will now move on to a job in industry.

After the successful defense Claudius receives his doctoral hat from Kathrin Hellmuth.



Claudius next to myself and Fritz Röpke



Claudius' doctoral hat, built by his fellow Phd students. - One sees (among other things) a Gresho vortex, a supersonic plane trying to fly subsonically, in the back Claudius relaxing (from his relaxation scheme), Claudius in a row boat joined by Fritz Röpke, myself and Giovanni Leidi.



here one sees a Riemann problem, and photos from his time as a PhD student.

Residenzlauf 2024

On Sunday, April 28, the 34th Würzburger Residenzlauf took place. The Department of Mathematics and Computer Science was represented by a large team consisting of 58 people (19 women, 39 men), among them 5 from our work group. This year, for the first time Claudius Birke participated in the "Lauf der Asse", a special 10 km competition for which he had to qualify. It took him only 39:31 minutes. The other 4 runners from our work group finished the 10 km in under an hour, contributing to a great group result. Congratulations!



members of our work group at the Residenzlauf 2024:

Claudius Birke, Lena Baumann, Kathrin Hellmuth, Armin Hofmann, Marius Volpert

Praveen Chandrashekar will visit May 15 - June 1

Praveen Chandrashekar is a specialist in numerical methods for conservation laws from Bangalore, India. We have 13 co-publications, some of which have been well received. His last visit to Würzburg was 5 years ago. It is exciting that he will visit us for two weeks

this month: May 15 - June 1.

He will give two lectures, on May 16 he will [teach on entropy stability](#), on May 23 he [presents his recent results](#) on the shallow water equations.

Upcoming scientific conferences

Click on the links and check where you might want to participate.

- June 5 - 7, 2024: [Analysis of dissipation in compressible and inviscid fluids](#), in Konstanz, Germany, organized among others by Emil Wiedemann
- July 1 - 5, 2024: [XIX International Conference on Hyperbolic Problems: Theory, Numerics and Applications \(HYP 2024\)](#) in Shanghai, China, at Shanghai Jiao Tong University, organized by Yachun Li & Ya-Guang Wang
- July 8 - 11, 2024: [Modern Perspectives in Applied Mathematics: Theory and Numerics of PDEs](#) in Zürich, organized by Sid Mishra
- Aug. 26 - 30, 2024: [11th International Conference on Multi-Material Fluid Flow \(MultiMat 2024\)](#) in Colorado, USA, organized by the Lawrence Livermore National Laboratory, USA
- Sept. 9 - 13, 2024: [Conference on high-order nonlinear numerical methods for evolutionary PDEs \(HONOM2024\)](#) on the Crete Island, Greece, organized by Elena Gaburro
- March 3 - 7, **2025**: [SIAM Conference on Computational Science and Engineering \(CSE25\)](#), in Fort Worth, Texas, USA
- June 9 - 13, 2025: NumHyp 2025, in Darmstadt
- Sept. 14 - 20, 2025: Hirschegg Workshop, in the Kleinwalsertal, Austria, organized by Gerald Warnecke and others
- sometime in **2026**: Finite Volume and Complex Applications 11, in Münster, Germany

We don't *always* have to pay for publishing

My article in the [newsletter 1 \(2024\)](#) "Open access: we need to pay for publishing from now on" needs to be nuanced.

We need to pay for publishing our scientific articles for journals on this list: [click here](#) and then press 'Zeitschriftenliste aller hybriden Zeitschriften mit Transformationsvertrag'. For journals not on this list we still have the option not to publish open access and then not to pay a publication fee. Notice that all SIAM journals are not on the list.

In case we publish say in an Elsevier journal (where we are forced to pay for the publication) universities in Germany have individual models to (partially) reimburse their authors. Some of them are much more generous than Würzburg university, such that the authors there may not even be aware of the new publication policy.

The publication fee is billed to the corresponding author of an article. A prudent choice of the corresponding author may avoid the publication fee.

Researchers must not be deterred by all of this: in order to advance scientifically they must publish in the best possible journal.