

NEWSLETTER

of the Work Group Mathematical Fluid Mechanics

Newsletter no. 9 (2023)

Paper with Marlies Pirner accepted

The article [Tobias Herzing, C. Klingenberg, Marlies Pirner: "Hypo-coercivity of the linearized BGK-equation with stochastic coefficients"](#) has been accepted to the journal [Methods and Applications of Analysis](#). In this theoretical study decay in time of certain stochastic kinetic PDEs is shown.

A paper with Yunguang Lu accepted

The paper [Xianting Wang, Yun-Guang Lu, Christian Klingenberg: "Viscosity-flux approximation method to inhomogeneous system of isentropic gas dynamics"](#) has been accepted to the [Journal of Mathematical Analysis and Applications](#). An existence proof is given for certain inhomogeneous gas dynamics systems in 1- dim.

New Bachelor thesis

[Leon Jakobi](#) has joined us to write his Bachelor thesis. He will work on numerics of conservation laws.

Veronika Mayerhofer submitted her Master thesis

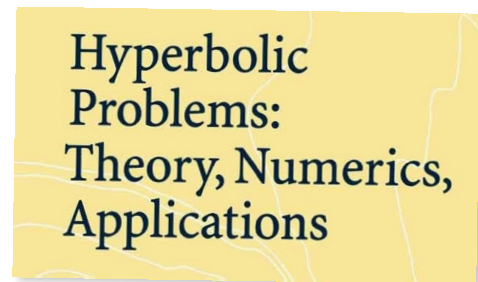
Veronika Mayerhofer submitted her Master thesis [Simulating Water Waves in Networks Using a High-Order Accurate Entropy Stable Finite Volume Scheme](#). It simulates flow in pipes that fork including random effects.

Invited speakers to HYP 2024 in Shanghai

The International Conference on Hyperbolic Problems 2025 July 1 - 5, 2024 in Shanghai has decided on its invited speakers. Here is the list of most of them:

Remi Abgrall (Zürich, Switzerland)
 Walter Boscheri (University of Ferrara, Italy)
 Juan Cheng (Beijing IAPCM, China)
 Elena Gaburro (Verona, Italy)
 Jingwei Hu (Seattle, USA)
 Shi Jin (Shanghai Jiao Tong University)
 Philip Isett (CalTech, USA)
 Tai-Ping Liu (Taipei, Taiwan)
 Maria Lukacova-Medvidova (Mainz)
 Anna Mazzucato (Penn State, USA)
 Lazlo Székelyhidi (Leipzig, Germany)
 Sergio Simonella (University of Rome I, Italy)
 Susanne Solem (Norwegian University of Life Sciences, Norway)
 Ruiwen Shu (University of Georgia, USA)
 Edriss Titi (University of Cambridge, UK)
 Alexis Vasseur (University of Texas, Austin, USA)
 Vlad Vicol (New York University, USA)
 Ewelina Zatorska (University of Warwick, UK)

The research areas we work on in our group are represented by most of these speakers.



Joint German-Spanish research proposal submitted



Carlos Pares and Manuel Castro from Malaga, Spain and myself have submitted a joint research proposal to the German Science Foundation (DFG) and its Spanish equivalent.

Genuinely multi-dim. numerical schemes are to be developed for multi-layer shallow water equations, which combines Würzburg expertise (like Active Flux) with Malaga knowledge (like treating non-conservative source terms numerically).

upcoming conferences:**Annual GAMM meeting**

The German Applied Math Society *GAMM* will hold its next *annual meeting* March 18 - 22, 2024 in Magdeburg, Germany.

- [Lena Baumann](#) will lecture there as part of a Minisymposium organized by Jonas Kusch.

- [Simon Markfelder](#) will lecture there in a Minisymposium on the DFG priority program on hyperbolic problems.

Workshop on geophysical flows

[Matthias Hieber](#) (Darmstadt) and others have been awarded a DFG *reserach group on geophysical flows*.

To their *first workshop* 16 - 18 Nov. 2023 [Simon Markfelder](#) has been invited to lecture on convex integration.

It is worth noting that part of this research group plans to work on *computational convex integration*.

Fritz Röpke's workshop

[Fritz Röpke](#) invites present and former collaborators of his to a yearly workshop. This year it takes place Dec. 18 - 19 in Heidelberg, see [here](#).

DFG priority program on hyperbolic problems kickoff workshop

The new DFG *priority program on hyperbolic problems*, that both Simon Markfelder and myself are part of, will have its first workshop on Jan. 22 - 23 in Stuttgart.

Next Hirscheegg workshop

The Hirscheegg workshop is a meeting of mainly German researchers on conservation laws in the Alps. [See here](#) for past workshops. The next workshop will take place Sept. 14. - 20, 2025.

Upcoming scientific conferences

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

- Oct. 30 - Nov. 3, **2023**: [Finite Volumes for Complex Applications in Strasbourg](#) in Strasbourg, France, organized by Philippe Helluy and others
- Nov. 6 - 10, 2023: "Numerical Methods for the Kinetic Equations of Plasma Physics", organized by Eric Sonnendrücker at the Max Planck Institute for Plasma Physics in Garching.
- Nov. 8 - 10, 2023: "[Chemnitz symposium on inverse problems](#)", in Würzburg, organized by Frank Werner among others.
- Nov. 16 - 17, 2023: "Workshop on behalf of Carlos Pares' birthday", in Malaga, organized by Manuel Castro
- Nov. 16 - 18, 2023: [Workshop on Geophysical Flows](#), in Darmstadt, Germany
- Dec. 18 - 19, 2023: [Fritz Röpke Workshop](#) in Heidelberg
- Jan. 16 - 19, **2024**: "[Kinetic and hydrodynamic PDEs \(Conference in honour of François Golse's 60th birthday\)](#)", at ETH Zürich, organized by Desvillettes and others
- Jan. 22 - 23: Kickoff workshop DFG priority program on hyperbolic problems, organized by Christian Rohde in Stuttgart, Germany
- March 18 - 22, 2024: [Annual meeting of the GAMM](#) in Magdeburg, Germany, organized among many others by Peter Benner
- Feb. 25 - March 1, 2024: [Oberwolfach workshop on Hyperbolic Balance Laws](#) will be organized by Remi Abgrall among others
- March 3 - May 31, 2024: [Numerical Methods for Nonlinear Hyperbolic PDEs](#), in Shenzhen, China, organized by Alex Kurganov, Chi-Wang Shu and Alina Chertok
- 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 Shi Jin
- Sept. 9 - 13, 2024: [Conference on high-order nonlinear numerical methods for evolutionary PDEs \(HONOM2024\)](#) on the Crete Island, Greece, organized by Elena Gaburro
- June 9 - 13, **2025**: NumHyp 2025, in Darmstadt organized maybe by Lukacova
- summer of 2025: Sino-German workshop in Mainz, organized by Maria Lukacova
- Sept. 14 - 20, 2025: Hirscheegg Workshop, in the Kleinwalsertal, Austria, organized by Gerald Warnecke and others

NumHyp 2025

The NumHyp is a bi-yearly, mainly European conference on numerics of conservation laws. [See here](#) for the last one in Bordeaux. The next one will take place June 9 - 13, 2025 in Darmstadt.