Christian Klingenberg 11. May 2025

NEWSLETTER

of the Work Group Mathematical Fluid Mechanics

Newsletter no. 7 (2025)

Kathrin Hellmuth's PhD thesis will be published as a book in Springer Verlag

Kathrin Hellmuth's PhD thesis, *see here*, discusses experimental design for identifying parameters in PDEs. This topic has great potential in applications. It is a timely topic within the field of inverse problems. So far there has not been a lot of literature in this field. On top of that the thesis is well written.

After a referee process this has now convinced Springer Verlag to publish this PhD thesis as a book in one of their book series.

Congratulations, Kathrin!

Website set up for the conference: *Hyperbolic problems - a comprehensive approach*

In March 23 - 27, 2026 a conference will take place in Würzburg on hyperbolic PDEs. Now there is a website for this conference, *see here*.

On the right see the announcement with more details on the conference.

Praveen will visit us for 3 weeks

Praveen Chandrashekar works at the Tata Institute of Fundamental Research, Centre for Applicable Mathematics in Bangalore, India. He is an expert on computational methods for PDEs, always with an eye towards the applicability of his methods in real applications.

Praveen will visit us May 10 - June 1, 2025. During his stay he will give two lectures pertaining to the study of continuous Galerkin method for hyperbolic PDEs, *find his lectures here*. He wants to explore ideas from summation-by-parts, split-form schemes and gradient jump penalty to construct schemes that will hopefully ultimately be useful in the direct numerical simulation of turbulent flows.

Praveen

The aim of this conference is to bring together leading scientists in the field of analysis, numerics, and applications of hyperbolic partial differential equations.

March 23 - 27, 2026

in Würzburg, Germany

a conference on the occasion of Christian Klingenberg's 70th birthday

https://indico.math.cnrs.fr/e/comprehensive26

tentative speakers:

Rémi Abgrall
Christophe Berthon
Walter Boscheri
Gui-Qiang G. Chen
Praveen Chandrashekar
Constantine Dafermos
Bruno Després
Michael Dumbser
Lukas Einkemmer
Eduard Feireisl
Elena Gaburro
Maria Han-Veiga
Philippe Helluy
Christiane Helzel
Willi Jäger
Shi Jin
Philippe LeFloch
Maria Lukacova
Qin Li
Carlos Parés
Gabriella Puppo
Nils-Henrik Risebro
Wolfram Schmidt
Chi-Wang Shu
Eric Sonnendrücker
Volker Springel
Min Tang
Yinhua Xia

organizers:

Wasilij Barsukow
Simon Markfelder
Marlies Pirner
Fritz Röpke
Emil Wiedemann

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Simon and myself submitted a mini-symposium at SIAM PD25

The American Society of Industrial and Applied Mathematics (SIAM) runs a conference series on the theory of PDEs: the *SIAM Conference on Analysis of Partial Differential Equations* (PD25) . The next one will be held November 17 – 20, 2025 in Pittsburgh, USA.

This conference usually has about 250 participants and mainly consists of contributed mini-symposia (these are small series of presentations on specific topics). Simon Markfelder, myself and Simon's post-doc Valentin Pellhammer have submitted a mini-symposium proposal titled "*What are good solution concepts for the PDEs of fluid mechanics?*". Among the speakers will be Eduard Feireisl and Alexis Vasseur.

Let us hope this proposal will be accepted.

Pittsburgh in the fall

We will have a presence at NumHyp25

June 9 - 13, 2025 in Darmstadt there will be a conference on the numerics of hyperbolic problems, called NumHyp25. This conference takes place every two years and is attended mainly by European researchers. Typically about 90 persons attend this conference.

From our 'extended' work group this conference will be attended by Junming Duan, Lisa Lechner, Wasilij Barsukow (Bordeaux) and myself. Two of us will present posters (Junming and Lisa), the other two will give presentations.

When looking at the schedule (*see here*), one notices that all of Wednesday morning's lectures are centered around the Active Flux numerical method, a topic the four of us will be presenting on.

Upcoming scientific conferences

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

- June 9 - 13, 2025: *Numerical methods for hyperbolic problems 2025* (NumHyp25), in Darmstadt, organized by Jan Giesselmann and others

- June 25 - 27, 2025: *Mathematics of compressible fluids - analysis and numerics*, organized by Dominic Breit and Philipp Öffner in Clausthal, Germany

- June 24 - 27, 2025: *30th Biennial Conference in Numerical Analysis* in Glasgow, organized by persons from the University of Strathclyde, Glasgow

- July 13 - 18, 2025: *International Conference on Spectral and High-Order Methods* (ICOSAHOM), in Montreal, Canada

- July 28 - Aug. 1, 2025: *Applied Inverse Problems 2025* (AIP 2025), in Rio de Janeiro, Brazil

- Aug. 18 - December. 19, 2025: *Kinetic Theory: Novel Statistical, Stochastic and Analytical Methods*, at the Simons Laufer Mathematical Sciences Institute in Berkeley, California.

- Sept. 1 - 5, 2025: *European Conference on Numerical Mathematics and Advanced Applications* (ENUMATH 2025) in Heidelberg, organized by Barbara Wohlmuth among others

- Sept. 14 - 20, 2025: *Hirschegg Workshop*, in the Kleinwalsertal, Austria, organized by Ferdinand Thein and Gerald Warnecke

- Sept. 24 - 26, 2025: *Workshop on Hyperbolic Problems*, in Nürnberg, organized by Emil Wiedemann and Nicola De Nitti

- November 17 – 20, 2025: *SIAM Conference on Analysis of Partial Differential Equations* (PD25), Pittsburgh, Pennsylvania, USA

- December 6 - 8, 2025: Workshop on Active Flux, in Shenzhen, China, organized by Rémi Abgrall and Alexander Kurganov

- sometime in **2026**: Finite Volume and Complex Applications 11, in Münster, Germany

- March 23 - 27, 2026: *Hyperbolic problems – a comprehensive approach*, in Würzburg, Germany, organized by Wasilij Barsukow, Simon Markfelder, Marlies Pirner, Fritz Röpke, Emil Wiedemann

- May 25 - 29, 2026: 20th International Conference on Hyperbolic Problems (HYP2026): Theory, Numerics and Applications, in Stuttgart, Germany organized by Maja Lukacova und Christian Rhode