NEWSLETTER

of the Work Group Mathematical Fluid Mechanics

Newsletter no. 22 (2021)

Paper with Philippe Helluy accepted

This paper has been accepted for publication: *Hubert Baty, Florence Drui, Emmanuel Franck, Philippe Helluy, Christian Klingenberg, Lukas Tannhäuser: "A robust and efficient solver based on kinetic schemes for Magnetohydrodynamics (MHD) equations", Springer Book Series "Forum for Interdisciplinary Mathematics": Numerical Fluid Dynamics: Modelling and Computations, ed. Zeidan, Zhang, Goncalves Da Silva, Merker (2021)*

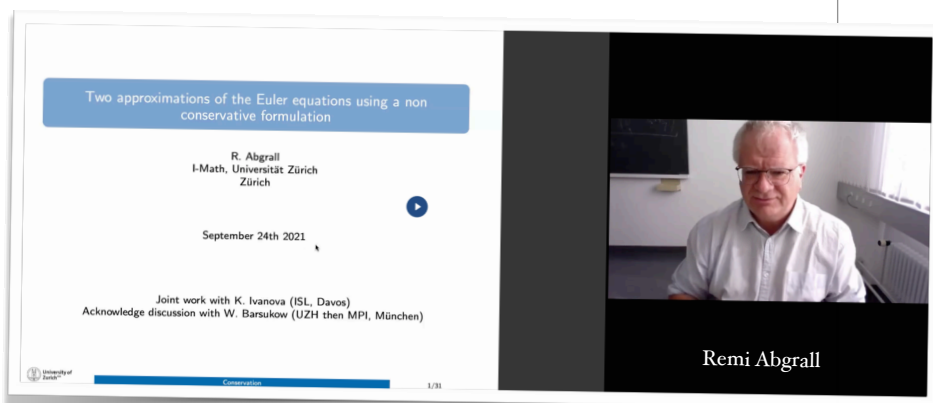It contains our joint work with Philippe Helluy (Strasbourg).

Lena Baumann submitted her Master thesis

Lena has submitted her Master thesis *On Landau damping coupled with relaxation for the Vlasov-Poisson-BGK system*. She extends the proof of Landau damping in the linearized case to the Vlasov-Poisson-BGK system.x

Lena Baumann begins her PhD thesis

Lena will now begin her PhD thesis with us. She will study highly efficient stochastic based numerical methods for kinetic problems.

Our Friday Zoom seminar got off to a good start

Our *series of weekly Zoom lectures on Hyperbolic Problems* on Friday at 3 pm got off to a good start with a lecture by Remi Abgrall. His lecture touched on important open questions. I have asked Wasilij to join us on Tuesday Sept. 28 in our Zoom group meeting so we can shed more light on this.

Here is the list of the upcoming lectures:
- Oct. 1: Viktor Linders
- Oct. 8: Stéphane Brull
- Oct. 15: Giovanni Russo
- Oct. 22: Dmitri Kuzmin
- Oct 29: Lorenzo Pareschi
- Nov. 5: Francis Filbet
- Nov. 12: Dave Ketcheson
- Nov. 19: Walter Boscheri
- Nov. 26: Matteo Semplice
- Dec 3: Raphael Loubère
- Dec. 10: Frank Martin

Upcoming scientific conferences

Go ahead and click the links to check where you might want to participate.

2021:

- Nov.. 8 - 12, 2022: *Convex Integration and Nonlinear Partial Differential Equations*, a hybrid workshop organized among others by Gui-Qiang Chen and László Székelyhidi

2022:

- Jan. 10 - 14, 2022: *Workshop on tissue growth and movement*, at the Poincaré Institute in Paris, co-organized by Perthame

- Jan. 10 - June 24, 2022: *Frontiers in kinetic theory: connecting microscopic to macroscopic scales - KineCon 2022* , a one semester program organized at the Newton Institute at Cambridge University with 5 one week workshops in this time

- Feb. 14 - 18: *Rigorous analysis of incompressible fluid models and turbulence* organized among others by Anna Mazzukato and Edriss Titi

- March 7 - 11, 2022: *Perspectives on Multiphase Fluid Dynamics, Continuum Mechanics and Hyperbolic Balance Laws* in Luminy near Marseille, France, organized among others by Dumbser and Warnecke

- March 14 - 18, 2022: *SIAM Conference on Analysis of Partial Differential Equations* **online**, organized by Sid Mishra and Emil Wiedemann

- May 16 - 20, 2022: *The Boltzmann Equations: in the trail of Torsten Carlemann*, near Stockholm, Sweden

- April 4 - 8, 2022: *HIGH ORDER NONLINEAR NUMERICAL METHODS FOR EVOLUTIONARY PDEs: THEORY AND APPLICATIONS (HONOM)* in Braga, Portugal, organized by Raphael Loubère und Stephane Clain

- April 10 - 15, 2022: *Structure preserving discretizations*, in Oberwolfach, organized by Bruno Despres, Michael Dumbser, myself

- May 25 - 29, 2022: *Sharing Higher-order Advanced Research Know-how on Finite Volume (SHARK-FV)* in Portugal, organized by Raphael Loubère und Stephane Clain (still in its planning stage)

- June 5 - 9, 2022: *ECCOMAS congress* (ECCOMAS = European Community on Computational Methods in Applied Sciences), in Oslo

- June 20 - 25: HYP2022:*18th International Conference on Hyperbolic Problems, Theory, Numerics, Applications* - Part 2 (formerly HYP 2020), in Malaga, Spain, organized by Carlos Pares

- July 18 - 22, 2022: *When Kinetic Theory meets Fluid Mechanics*, in Zürich, organized among others by Alexis Vasseur

- Sept. 5 - 9, 2022: *10th International Conference on Numerical Methods for Multi-Material Fluid Flow (MULTIMAT 2021)* in Zürich, organized by Remi Abgrall

A week ago Farah Kanbar attended a workshop in the Alps

One week ago Farah Kanbar returned from the *Hirschegg Workshop on Conservation Laws* in the beautiful Kleinwalsertal in the Alps. The participants were mainly from Germany (see the schedule of the workshop *here*).

Farah presented her work, which was well received. In addition there was plenty of hiking, see the pictures she took.

Kleinwalsertal

Sandra Warnecke got married

Late in August Sandra got married - we wish you all the best for your upcoming years together!

Kathrin Hellmuth's birthday

Congratulations, Kathrin, for your birthday two weeks ago!