NEWSLETTER

of the Work Group Mathematical Fluid Mechanics

Newsletter no. 4 (2021)

End-of-semester party on Feb. 12.

On Friday, Feb. 12, beginning at 6 pm, we will have our online end-of-semester party.
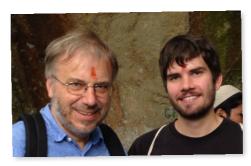
If you come up with ideas on how to make this more fun, let me know.

Simon Markfelder receives a prize

Our department of mathematics selected Simon Markfelder's PhD thesis as the best thesis in 2020. This means in spring of 2021 he will be awarded the *"Promotionspreis der Unterfränkischen Gedenkjahrstiftung für Wissenschaft und der Julius-Maximilians-Universität Würzburg 2021".*

Congratulation, Simon!

Simon and myself had visiting India. The red dot stands for spiritual enlightenment. No wonder he wrote a good thesis …

Min Tang invited speaker at "HYP2020"

The "*18th International Conference on Hyperbolic Problems, Theory, Numerics, Applications*" (aka HYP2020) originally was scheduled for summer 2020. It has now been moved to two dates: On July 2, 2021 there will be a one day online conference with 4 speakers only (including Dafermos). Among them will be *Min Tang* from Shanghai. In addition June 20 - 25, 2022 the conference will take place in Malaga, Spain, hopefully without restrictions.

Min Tang

some current work group members

Students working on their <u>Master</u> thesis:

Mattis Vogelsang numerical methods for a kinetic plasma model

Jonas Jackwirth Korteweg de Vries equation, uncertainty quantification

Winnie Hartwig on Jean-Luc Guermond's invariance domain preserving numerical scheme

Julian Meusel Einstein equations written as a hyperbolic system, numerical implementation using the code ExaHyp

Lena Baumann proving Landau damping for the Vlasov-BGK equation

Claudia Knorr numerical parameter study using Fritz Röpke's astrophysics code

Students working on their <u>Bachelor</u> thesis:

Michael Remmel well-posedness theory for conservation laws via front tracking

Jonas Schlecht Diskretisierung von kinetischen BGK Gleichungen

Johannes Rieger Theorie von Fluidgleichungen

Veronika Mayerhofer the shallow water equations, numerical implementation using ClawPack

Upcoming scientific conferences

I try to keep this list up-to-date. I encourage you to click the links and check, where you may want to participate.

2021:

- Feb. 8 - 10: *Methods and models of kinetic theory 2022* in Torino, Italy, organized among others by Maria Groppi

- March 1 - 5: Oberwolfach: *Hyperbolic Balance Laws: modeling, analysis, and numerics*, organized among others by Remi Abgrall and Maria Lukacova

- March 1 - 5, *SIAM Conference on Computational Science and Engineering*, online

-March 22- 26: *Kinetic Equations: From Modeling, Computation to Analysis*, in Marseille, France, organized by Shi Jin (still in its planning stage)

- April: *Nils-Henrik Risebro's birthday conference* in Oslo, Norway (still in its planning stage)

- May 24 - 28: *The Legacy of Carlo Cercignani: from Kinetic Theory to Turbulence Modeling* Milan, Italy, organized among others by Tommaso Ruggeri

- June 21 - 24: *SIAM Conference on Mathematical & Computational Issues in the Geosciences (GS21)*, in Milan, (still in its planning stage)

- July 2: *18th International Conference on Hyperbolic Problems, Theory, Numerics, Applications* - Part 1 (formerly HYP 2020), one day online with Dafermos (among others)

- July 5 - 9: *THE BOLTZMANN EQUATION: IN THE TRAIL OF TORSTEN CARLEMAN*, near Stockholm, Sweden

- July 12 - 16: *International Conference on Spectral and Higher Order Methods* ICOSAHOM 2020, Vienna (online only), Wasilij and myself plan to run a mini-symposium there

- fall: Special program on Numerical Methods for Nonlinear Hyperbolic PDEs; at SUSTech, Shenzhen, China: organized by Alex Kurganov (still in its planning stage)

2022:

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

- end of May: *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 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*, Zürich

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