

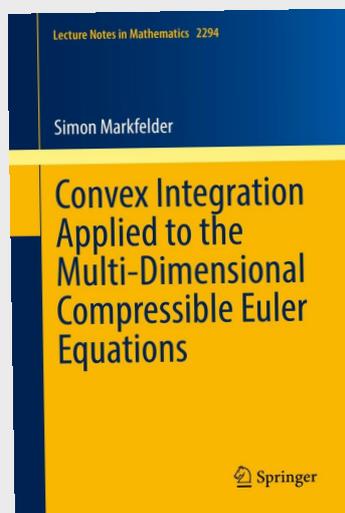
NEWSLETTER

of the Work Group Mathematical Fluid Mechanics

Newsletter no. 24 (2021)

Simon's PhD thesis published in Springer Verlag

Simon Markfelder's PhD thesis will be published in a prestigious book series in Springer Verlag called *Lecture Notes in Mathematics*. See [here](#) for more details



New conferences

I added two workshops to the list of upcoming scientific meetings:

- June 27 - July 1, 2022 in Magdeburg, there will be a workshop on hyperbolic problems

- Sept. 12 - 14, 2022 in Oslo, Norway, Risebro's birthday conference

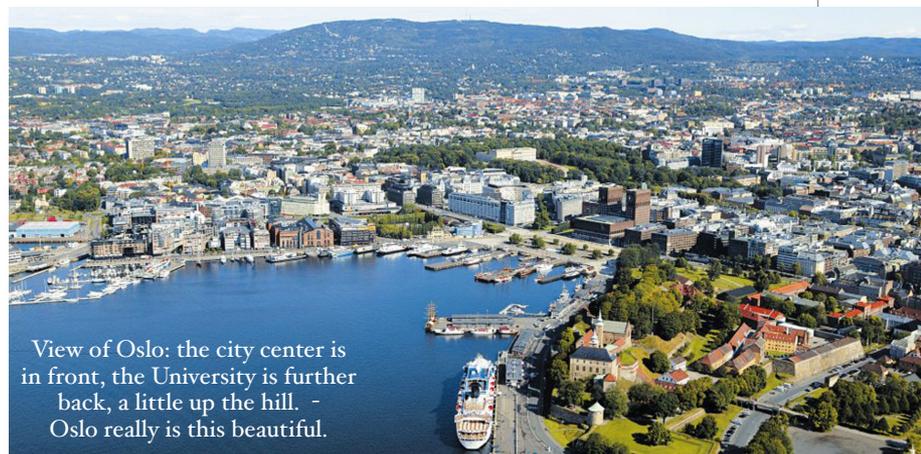
I have been invited to lecture in both these workshops.

The MultiMat2022 conference will take place Aug. 22 - 26, 2022 (new date).

Oslo chose Simon Markfelder for a tenure track position

At Oslo University in Norway, the academic ladder to a professorship works as follows: Oslo hires a promising postdoc, and then within a few years gives her/him the opportunity to qualify for a professorship. This is called a tenure track position.

Simon Markfelder had applied to such a position in the mathematics department. He was interviewed a few weeks ago. Now the mathematics department has chosen him for this position. The university administration has yet to approve this choice, which usually is no problem. So Simon and his family will probably move to Oslo in a year's time, at the end of his two year postdoc position in Cambridge.



View of Oslo: the city center is in front, the University is further back, a little up the hill. - Oslo really is this beautiful.

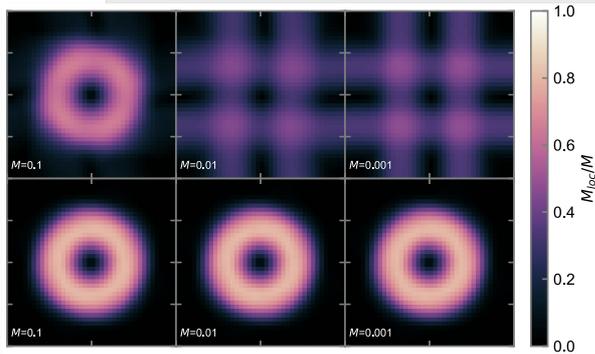
Marlies attended a workshop in Paris

Marlies was invited to the *Hypocoercivity Workshop* Oct. 13 - 15 in Paris, organized by Jean Dolbeaut and Christian Schmeiser. She gave a *lecture* titled "Hypocoercivity of a model describing the thermalization of a rarefied gas with total energy conservation".

Claudius Birke submitted an article

Claudius submitted the article [Claudius Birke, Christophe Chalons and Christian Klingenberg: "A low Mach two-speed relaxation scheme for the compressible Euler equations with gravity", submitted \(2021\).](#)

In this paper a numerical scheme for the the compressible Euler equations with gravity is presented. This scheme, which is able to follow the incompressible limit, uses well-balancing (meaning it has the ability to maintain specific stationary solutions, namely hydrostatic equilibria). At the core an approximate Riemann solver is found based on the relaxation approach.



An analytic solution (the Gresho vortex) is numerically computed for various Mach numbers ($10^{-1}, 10^{-2}, 10^{-3}$). The picture of the analytic solutions looks the same in all these cases. The bottom row is our scheme, the top row is not.

Farah's birthday - Wasilij's birthday

Since the last newsletter we have had two birthday's:

- Farah Kanbar
- Wasilij Barsukow.

Happy birthday!

Upcoming scientific conferences

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

2021:

- Oct. 25 - 28, 2021: [Kinetic & Mean Field Problems: Theory, Numerics and Applications](#), online Fall School, co-organized by Lorenzo Pareschi
- Nov. 8 - 12, 2021: [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 Knowledge on Finite Volume \(SHARK-FV\)](#) in Portugal, organized by Raphael Loubère und Stephane Clain
- 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
- June 27 - July 1, 2022: [Hyperbolic balance laws & beyond](#), in Magdeburg, organized by Helzel and Lukacova
- July 18 - 22, 2022: [When Kinetic Theory meets Fluid Mechanics](#), in Zürich, organized among others by Alexis Vasseur
- Aug. 22 - 26, 2022: [10th International Conference on Numerical Methods for Multi-Material Fluid Flow \(MULTIMAT 2021\)](#) in Zürich, organized by Remi Abgrall and others
- Sept. 12 - 14, 2022: [Nils Henrik Risebro birthday conference](#) in Oslo, organized among others by Fjordholm, Holden, Mishra