

NEWSLETTER

of the Work Group Mathematical Fluid Mechanics

Newsletter no. 7 (2026)

News about a paper from our work group

Paper with Phil Roe and Simon Krotsch submitted

The paper [Christian Klingenberg, Simon Krotsch, Phil Roe: "On Enhancing the Dissipative Behavior of Active Flux Advection Schemes"](#), has been submitted to a conference proceedings.

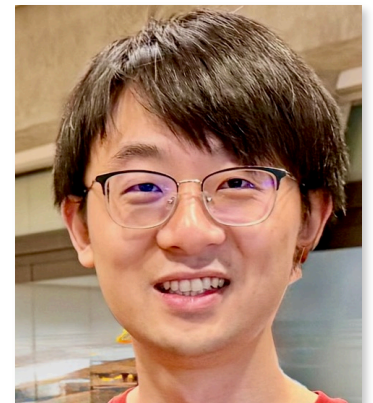
During the last two years of Phil Roe's life I discussed Active Flux regularly with him (joined first by Lisa Lechner, and then by Simon Krotsch) via Zoom and also during a visit in Ann Arbor last summer. Two topics emerged in these discussions, one of which is presented in this paper. It is the observation that a modification of the Active Flux method by free parameters can lead to an improved numerical scheme with the right choice of parameters. Phil himself called it the [super-duper scheme](#).

The second topic with Phil Roe will be made into a paper later.

Junming Duan will visit us May 13 - 24, 2026

[Junming Duan](#) from the Chinese University of Hongkong (Shenzhen, China) was a Humboldt postdoc with our group from 2023 to 2025. During his stay he made significant contributions to our joint efforts on the Active Flux numerical method.

From May 13 on Junming will spend 10 days with us and afterwards attend the HYP 2026 conference (see below). We plan to finish loose ends from work of his previous stay and begin a new project.



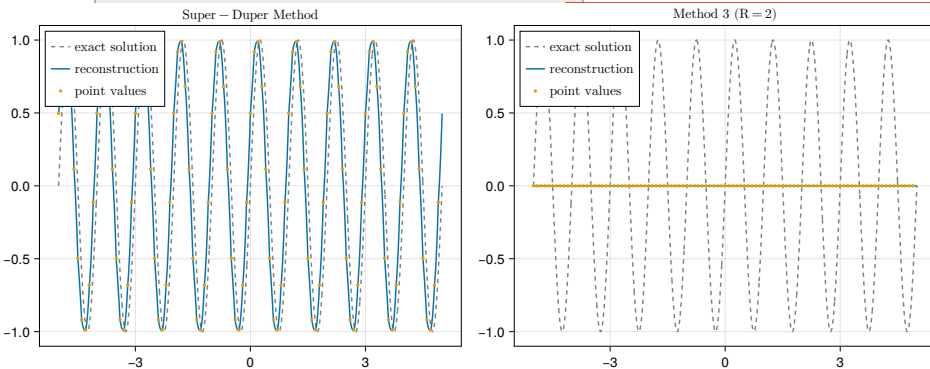
Junming Duan



The HYP 2026 conference in Stuttgart begins in 2 weeks

Every two years a big conference on hyperbolic problems takes place, in different cities in the world. The next one will be in Stuttgart, Germany May 25 - 29, 2026. It consists of invited speakers in the morning and around 220 contributed talks in 9 parallel sessions on three afternoons. Despite this overwhelming number of talks the conference is a great opportunity to get to know new faces and meet old friends.

From our extended work group there will be contributed lectures by [Wasilij Barsukow](#), [Yu-Chen Cheng](#), [Junming Duan](#), myself, [Simon Krotsch](#), [Mengni Li](#), [Nikhil Manoj](#), [Simon Markfelder](#) and [Marlies Pirner](#). Also [Sophie Lauer](#) will attend the conference. - In addition I will give a talk during the conference dinner on the history of this series of conferences, the first one took place in 1986.



We see the numerical simulation of the 1-dim. advection equation $q_t + a q_x = 0$ on a periodic domain with sinusoidal initial data (the dashed curve). After a long time (where the PDE gives the same solution as the initial data) on the left the result of the super-duper Active Flux scheme (blue curve) modified by parameters is seen to be doing a great job. On the right the stabilizing dissipation of the Active Flux scheme without parameter modification has completely dissipated away the oscillations (orange dots).