NEWSLETTER

of the Work Group Mathematical Fluid Mechanics

Newsletter no. 6 (2023)

Lena submitted a paper

The paper *Lena Baumann, Lukas Einkemmer, Christian Klingenberg, Jonas Kusch: "Energy stable and conservative dynamical low-rank approximation for the Su-Olson problem, submitted (2023)* has been submitted.

The low-rank solver for PDEs by Lukas Einkemmer has been analyzed for its stability in this paper. This is Lena's first submitted journal article.

Claudius paper submitted

The collaboration with Walter Boscheri has produced an article submitted to a journal: *Claudius Birke, Walter Boscheri, Christian Klingenberg: "A well-balanced semi-implicit IMEX finite volume scheme for ideal Magneto-hydrodynamics at all Mach numbers", submitted (2023)* .

This paper devised a scheme for ideal MHD with gravity that is both well-balanced and low Mach for the sonic Mach number.
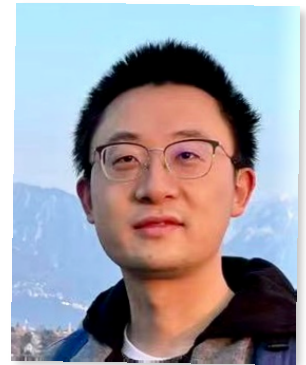
upcoming visitors

These are two of our upcoming visitors in the winter semester:
- *Carlos Pares* (Malaga, Spain) in Jan. 2024
- *Philippe Helluy* (Straßburg) in the fall of 2023

Junming Duan: our new post-doc in the fall

Junming Duan received his PhD at Peking University (one of top two universities in China) two years ago. Being advised by Huazhong Tang, he developed high order DG schemes with a moving mesh for ideal MHD. For his postdoc he moved to Lausanne to work with Jan Hesthaven on machine learning enhanced numerical methods for conservation laws. His next postdoc will be with us in Würzburg beginning Oct. 2023.
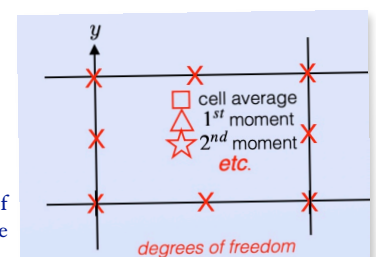

Jun-Ming Duan

In order to ensure the financing of his upcoming stay, we had secured a stipend through Würzburg university. In addition we had also applied for both a DFG grant and a Humboldt postdoctoral fellowship. For Junming's future career the Humboldt fellowship is best. Fortunately he was awarded the Humboldt fellowship. So the Würzburg fellowship was turned down. The referees of the DFG grant have asked to revise his application. If the revised submission will be successfull, we could hire a PhD student.

We plan is to work on reduced-order modeling, using adaptive moving mesh and machine learning for conservation laws. - Junming has a pleasant personality and we are looking forward to his stay.

Lisa Lechner begins her PhD with us

Within the DFG priority program on the conservation laws Wasilij Barsukow and myself were awarded a grant to work on the generalized Active Flux method. With this money we will hire Lisa Lechner. This will be her PhD project. She has a Masters degree from the TU Munich and is quite adept at programming.

Welcome on board, Lisa!

a two space dimensional stencil of the generalized Active Flux scheme

The scientific committee for HYP 2024

The *Conference on hyperbolic problems: Theory, Numerics and Applications (HYP 2024)*, organized by Shi Jin, will be held in Shanghai July 1 - 5, 2024. The scientific committee has now been selected. This is a partial list:

Abgrall Remi (Zürich), Sylvie Benzoni (France), Stefano Bianchini (Italy), Alberto Bressan (USA), Jose A. Carrillo (England), Chen Gui-Qiang (England), Chen Shuxing, (Shanghai), Feireisl Eduard (Prague), Seung-Yeal Ha (Korea), Jan Hesthaven (Lausanne), Helge Holden (Norway), Song Jiang (Beijing), Christian Klingenberg (Germany), Yasunori Maekawa (Japan), Carlos Pares (Spain), Benoit Perthame (France), Chi-Wang Shu (USA), Eitan Tadmor (USA), Xin Zhouping (Hong Kong).

Their task now is to select the invited speakers to the conference.

Farah Kanbar got married

Our former PhD student Farah Kanbar, who went to work for a company in Munich after her PhD, has married her Lebanese fiancé earlier this month in Tyr in Lebanon.

Tyr was founded almost 5000 years ago and has been inhabited since then.

Upcoming scientific conferences

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

- Aug. 14 - 16, 2023: *Workshop on Stability, Mixing and Fluid Dynamics*, organized by Benjamin Gess, Emil Wiedemann and others

- Sept. 4 - 8, 2023: *European Conference on Numerical Mathematics and Advanced Applications (ENUMATH)*, in Lisbon, Portugal

- Sept. 4 - 8, 2023: *11th Applied Inverse Problems Conference*, in Göttingen, organized by T. Hohage, G. Uhlmann and others

- Sept. 10 - 16, 2023: *16th Hirschegg Workshop on Conservation Laws*, in the Alps (Kleinwalsertal), organized by Gerald Warnecke and others

- Sept. 25 - 29, 2023: Sino-German workshop, in Beijing, organized by Gerald Warnecke and others

- Oct. 30 - Nov. 3, 2023: *Finite Volumes for Complex Applications in Strasbourg* in Strasbourg, France, organized by Philippe Helluy and others

- March 3 - May 31, 2024: *Numerical Methods for Nonlinear Hyperbolic PDEs*, in Shenzhen, China, organized by Alex Kurganov, Chi-Wang Shu and Alina Chertok

- July 1 - 5, 2024: *XIX International Conference on Hyperbolic Problems: Theory, Numerics and Applications (HYP 2024)* in Shanghai, China, at Shanghai Jiao Tong University, organized by Shi Jin

- Sept. 9 - 13, 2024: *Conference on high-order nonlinear numerical methods for evolutionary PDEs* (HONOM2024) on the Crete Island, Greece, organized by Elena Gaburro

Greek ruins in Tyr that are built on top of older civilizations

TOGETHER WITH THEIR FAMILIES

Jamal & Farah

INVITE YOU TO JOIN THEIR WEDDING CELEBRATION ON

SATURDAY

JULLY

08

2023

AT 8PM
FEEL FREE TO COME EARLIER TO ENJOY THE SUNSET

EL BOUTIQUE
ROOF TOP
OLD CITY OF TYR

KINDLY RSVP BEFORE 15 JUNE
FOR THOSE WHO DESIRE, A WEDDING LIST IS AVAILBLE AT WHISH MONEY
ACCOUNT NUMBER 20614181