

Registration fee includes

Printed lecture notes, lectures by invited speakers, software lab mentored by OpenLB developers, 5x lunch, 3x dinner, social excursion and Spring School dinner, all coffee breaks, certificate of participation

Pricing

	Early registration (by 12. January 2018)	Regular registration
Academia	€ 350	€ 500
Industry	€ 1.700	€ 1.700

Important dates

Spring School 19. - 23. March 2018

Early registration 12. January 2018

Grants

Limited financial support is available to cover conference fees partially for students.

Send a letter of motivation (1 page) by the 12.01.2018 to springschool2018@openlb.net

Poster session award

The award is aiming at supporting excellent students working in the field of LBM.

More information

Web: www.openlb.net/spring-school-2018

Email: springschool2018@openlb.net



UNIVERSITY OF
TUNIS EL MANAR



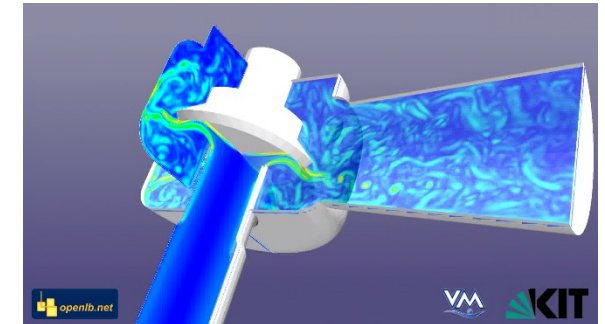
Spring School:

Lattice Boltzmann Methods

with *OpenLB* Software Lab

19. - 23. March 2018

Karlsruhe, Germany



www.openlb.net/spring-school-2018

Executive committee (GERMANY)

Mathias J. Krause

Albert Mink

Executive committee (TUNISIA)

Mahdi Tekitek

Ezeddine Sediki

Host organizations

Karlsruhe Institute of Technology

University of Tunis El Manar

OpenLB

The field of Lattice Boltzmann Methods

In recent years, Lattice Boltzmann Methods (LBM) turned into an established numerical tool for computational fluid dynamic (CFD) problems and beyond. The simulation of complex multi-physical problems benefits strongly from the comprehensive mesoscopic modelling underlying LBM and establishes LBM besides traditional numerical methods.

The rapid development in LBM - also driven by the emergence of massive parallel computer infrastructure - enables engineers to solve relevant problems for academia as well as for industry.

Target audience

The expected attendees are Master and PhD students as well as researchers and developers from academia and industry, who seek to learn both, theoretical and practical aspects of LBM. As simulation is an interdisciplinary discipline, the spring school addresses to engineers, computer scientists, mathematicians, physicians and others. Based on their interest in CFD, this course provides a collaborative platform for LBM both, for developers and researchers.

Objective of the spring school

The spring school introduces scientists and applicants from industry to the theory of LBM and trains them on practical problems. The first three days are dedicated to the theoretical fundamentals of LBM up to ongoing research on selected topics. Followed by two days of mentored training on case studies using *OpenLB*, the participants gain deep inside into LBM and its applications.

This educational concept is probably unique in the LBM community and offers a comprehensive and personal guided approach to LBM. Participants also benefit from the knowledge exchange during poster session, coffee breaks and an excursion.

Topic overview and preliminary agenda

MONDAY, 19.03.2018

- Morning Hand over spring school documents, introduction, LBM applications
- Afternoon Mesoscopic modeling: from micro to macro scale, LBM introduction, Chapman-Enskog expansion, target equations
- Evening Poster session and dinner at institute

TUESDAY, 20.03.2018

- Morning Boundary conditions, turbulence models, LBM for particulate flows
- Afternoon LBM for radiative transport, optimal fluid flow control with adjoint LBM, LBM for medical application, efficient parallel implementation
- Evening Dinner at institute

WEDNESDAY, 21.03.2018

- Morning Introduction *OpenLB*, pre- and post-processing, parallel execution
- Afternoon Social excursion
- Evening Spring School dinner and poster award

THURSDAY, 22.03.2018

- Morning Prepare geometry and convert physical parameters
- Afternoon Channel flow around cylinder
- Evening Dinner at institute

FRIDAY, 23.03.2018

- Morning Lid driven cavity and validation

Lab room and requirements

In the computing lab sessions on Thursday and Friday, the participants are trained on practical applications, deploying the open source software *OpenLB*. Particular focus is placed on case studies, which are important to understand and verify the theory presented in the lectures earlier in the spring school. By the help of experienced tutors, the computing lab sessions also enable to set up *OpenLB* simulations for relevant problems. To guaranty personal tutoring and intensive exchange between experienced mentors and novices, the lab is limited to 50 participants.

The attendees are responsible to bring their own laptop equipped with the software

- *GNU c++ compiler 4.8 and higher*
- *OpenMPI 1.6 and higher*
- *ParaView*

Speakers (preliminary)

- François Dubois, CNAM Paris, Université Paris-Sud, France
- Timm Krüger, University of Edinburgh, United Kingdom
- Patrick Nathen, Liliium GmbH, Germany
- Timothy Reis, University of Greenwich, United Kingdom
- Erlend M. Viggren, Norwegian University of Science and Technology
- Ezeddine Sediki, University of Tunis El Manar, Tunisia
- Mahdi Tekitek, University of Tunis El Manar, Tunisia
- Mathias J. Krause, Karlsruhe Institute of Technology, Germany
- Max Gaedtke, Marc Haussmann, Fabian Klemens, Marie-Luise Maier, Albert Mink, Markus Mohrhard, Robin Trunk from Karlsruhe Institute of Technology, Germany