

Announcement for the summer semester 2023

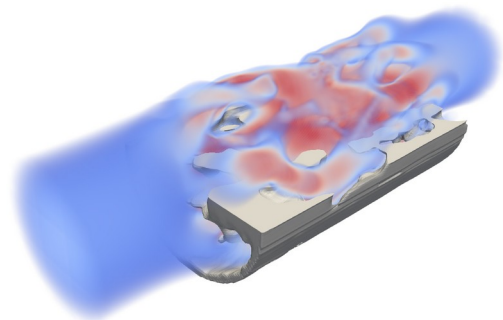
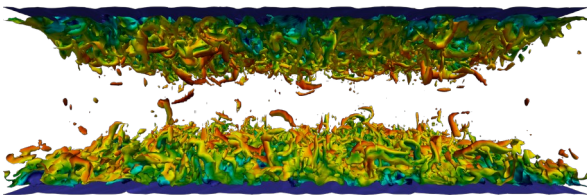
Project-oriented software tutorial

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This interdisciplinary practical course focuses on applications of mathematics for fluid dynamics in general. Within this context, the essential and interlocking concepts of

- **mathematical modeling**,
 - **numerical simulation** (with lattice Boltzmann methods),
 - **high performance computing** and
 - **presentation and evaluation** of results
- are taught with the help of examples.

Under guidance, a fluid dynamics problem is formulated, simulated and hence evaluated with the help of the computational results. Therefore, the C++ **software library OpenLB (www.openlb.net)** is provided and its usage on high performance computers is offered.



The projects are carried out in small groups of two or three students. Each group is supervised by a doctoral student. At the end of the project phase, a written documentation has to be handed in. Further, each group gives a short presentation to highlight specific results obtained during the course.

Suggested project topics by the participating students are welcome.

Compulsory attendance holds for the first two dates on **April 18 and 21, 2023** as well as for the **project presentations in July**.

Start: Tuesday, April 18, 2023
Dates: Tuesdays and Fridays, 9:45–11:15am, build. 20.30, -1.031 [**in Presence**]
Examination: Exercise sheets, project report, and project presentation
Credits: 4 ECTS (*upon agreement*: exercise course, seminar or laboratory)

The laboratory has an introductory character and requires solely basic prior knowledge in one of the following programming languages: C, Fortran, C++. Especially students of Masters courses in mathematics and chemical engineering are addressed.

Preregistration is mandatory. The maximum number of participants is 30!

For registration, or in case you have any questions, please send an email to stephan.simonis@kit.edu.

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