

Announcement for the winter semester 2025/26,  
Seminar in the Bachelor's or Master's program:

# Modeling, Algorithms, Simulation

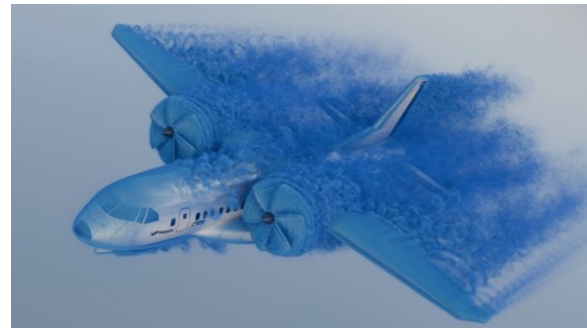
Dr. Stephan Simonis  
PD Dr. Gudrun Thäter  
PD Dr. Mathias J. Krause  
Dr. Jasmin Hörter  
Prof. Dr. Martin Frank

Methods of computational science are essential for modern research and development in science, technology and economy. This seminar covers the topics

- mathematical modeling,
- efficient algorithms and
- simulation on high-performance computers

in projects from the fields of *Scientific Computing* and *Process Engineering*.

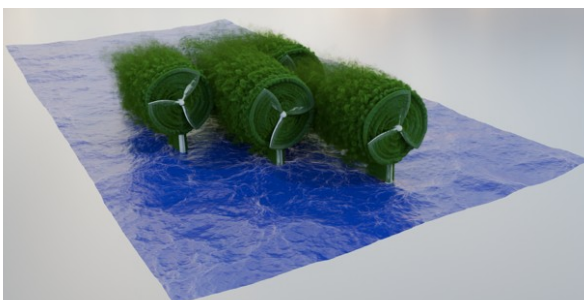
First, various project topics are presented and the respective problems are motivated. The proposed topics are worked on individually or in pairs and with the support of the seminar team. The students are introduced to using HPC systems at the Scientific Computing Center (SCC, KIT) with scalable parallel software such as *OpenLB*.



At the end of the semester, the results are presented and discussed in a block seminar.

The seminar is particularly suitable as preparation for a Bachelor's or Master's thesis.

Image credits: Adrian Kummerländer, Fedor Bukreev (LBRG, KIT).



Baden-Württemberg

MINISTERIUM FÜR WISSENSCHAFT, FORSCHUNG UND KUNST



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**Introductory meeting:**

**Further dates:**

**Examination:**

**Credit points:**

**Prerequisites:**

Monday, July 21, 2025, 1:10 PM, Building 20.30, Room 3.061

Seminar as a block course towards the end of the semester

Written report and presentation

2 SWS / 3 ECTS

Knowledge of a programming language. Basic knowledge of numerical methods for differential equations. Previous participation in the *Computational Fluid Dynamics and Simulation Lab* is an advantage but not required.

**Contact:**

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