

## Invitation to lecture series „Simulation Sciences“

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Wednesday, December 5th, 2018, SWZ room 324 (C9), TU Clausthal, 5:15 pm

**Alexander Bufe, M.Sc.**  
**Clausthal University of Technology,**  
**Institute of Applied Mechanics**

will talk about

### **Automatic Processing of Complex Geometries with the Lattice Boltzmann Method**

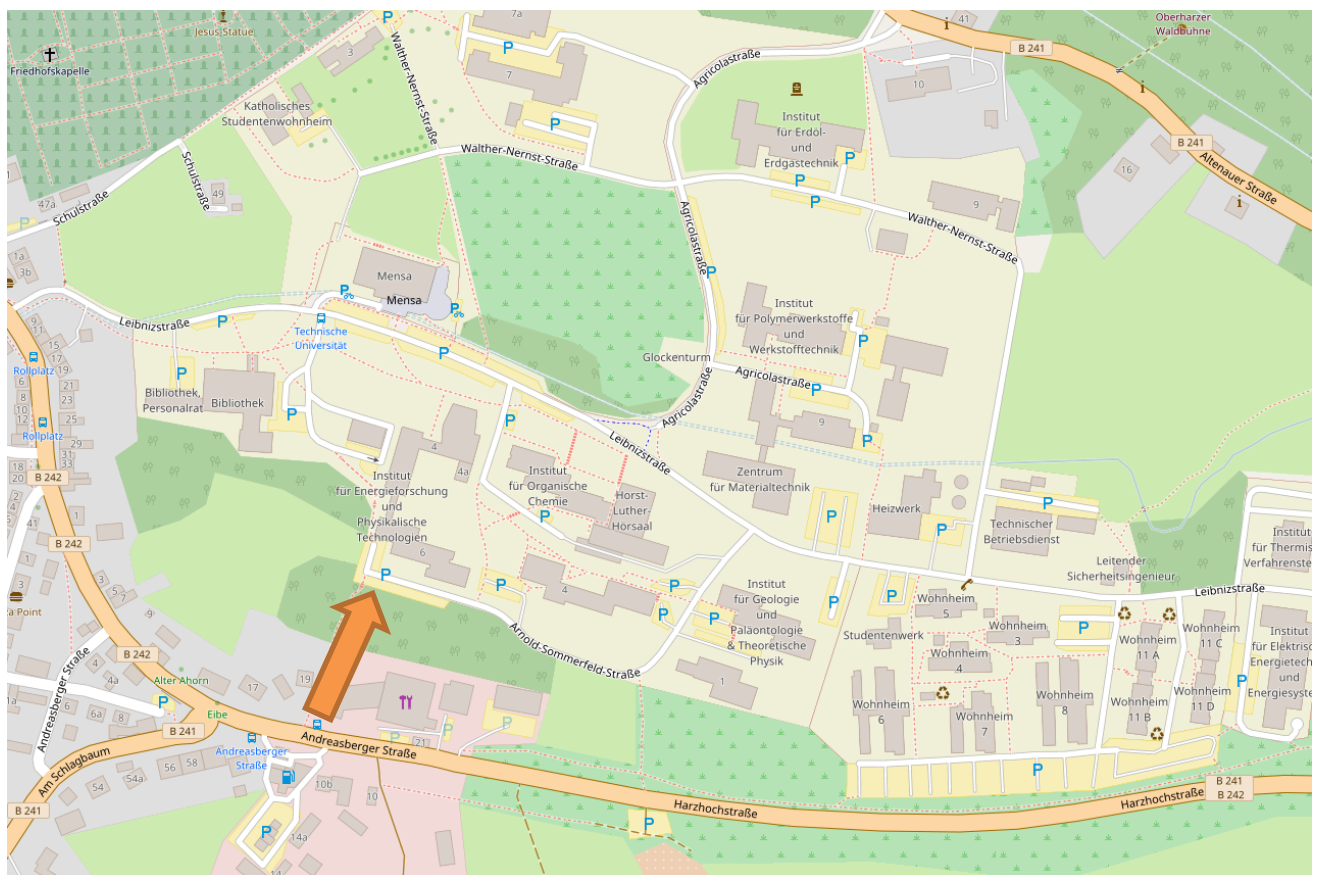
#### Content of the lecture:

In order to determine correlations between fluid dynamic coefficients and geometrical properties a large number of data points, usually obtained in experiments and measurements, have to be examined. Applications may be found in aerodynamics, process engineering or other disciplines. For example, in porous media correlations between pressure loss or dispersion have to be parametrized depending on details of the geometrical structure. In biomedical applications, the flow through a large number of complex structures has to be analyzed in a reliable and accurate way. In this context, computational approaches may offer an alternative route to provide such data. However, in classical fluid dynamics the mesh generation often requires manual processing, limiting the number of analyzable geometries. In contrast the lattice Boltzmann method, which usually operates on Cartesian grids, allows for easy and fully automatic mesh generation. Accuracy may be enhanced by using hierarchical refined meshes. Using a fully automated simulation setup the number of generated data is only limited by computational power and available input data. This talk gives a short introduction to the idea and basic concepts of LBM and illustrates the fully automatic approach drawing on examples from process engineering and medicine.

Guests are welcome.

The lecture will be held in this building:

**Simulation Science Center Clausthal-Göttingen  
Building C9, Room 324  
Arnold-Sommerfeld-Straße 6  
38678 Clausthal-Zellerfeld**



**Navigation:**  
[tu-c.de/c9](https://tu-c.de/c9)

