

Student assistant in Acoustic Modelling

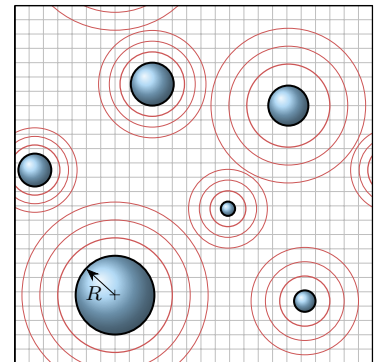
Start date: as soon as possible
Writing BSc/MSc thesis: possible

Work hours: 30-50 hours per month
Duration: 6 months (extension possible)

At the Chair of Mechanical Process Engineering we have extensive research activities in the numerical modelling of multiphase flows, as part of which we also study the complex behaviour of cavitation processes and their applications, and develop novel numerical methods to simulate such processes. A current focus of our work is the acoustic cavitation of microbubbles as they are frequently used in biomedical applications, in order to make the associated biomedical applications safer and more efficient.

As part of this work on acoustic cavitation, we are looking for a dedicated student assistant to support us in the modelling of nonlinear acoustics.

Your task: You will systematically investigate the interaction of two or more acoustic sources as they occur in acoustic cavitation events using the Matlab toolbox *k-wave*. The focus will be on nonlinear interactions and interference between these acoustic sources and acoustic boundaries (e.g. walls), including a frequency analysis. Based on this investigation, you will compile tabulated data sets which will then be used in our in-house software tools to model the interaction of acoustically-driven microbubbles, as illustrated in the picture on the right.



What we offer you: You will be part of an enthusiastic group of researchers and you will have the opportunity to gain experience as part of a comprehensive research project on acoustic cavitation. A long-term collaboration is desired and we will provide the opportunity for writing a BSc/MSc thesis based on this project.

Prerequisites:

- Ongoing Bachelor or Master studies at OVGU for an engineering or natural sciences degree
- Experienced user of Matlab
- First experience with Linux/UNIX
- Good understanding and knowledge of acoustics

Desirables:

- Programming experience in C/C++
- Experience with fast Fourier transform (FFT) methods and algorithms

If you're interested or have further questions please contact

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