

Oberseminar Numerik am 09.05.2014

um 14:15 Uhr im Hilbertraum (05-432, Gebäude 2413, Staudingerweg 9, 55128 Mainz)

Presenter:

Caroline v. Dresky (Fraunhofer MEVIS, Institute for Medical Image Computing, Bremen)

Title:

Efficient Numerical Simulation of High-Intensity Focused Ultrasound Therapy

Abstract:

In the past decades, tumor therapy by high-intensity focused ultrasound (HIFU) has become a promising, non-invasive alternative to surgical intervention. Although this therapy is used clinically to treat specific tumors, there are still challenges to overcome, such as a reliable treatment planning as well as the prediction of the outcome. With respect to these needs, current research at Fraunhofer MEVIS aims at the development of software assistance for HIFU treatments based on efficient numerical simulation methods.

Beyond a short introduction to high-intensity focused ultrasound, this presentation will give an overview of the mathematical models and numerical methods used to efficiently simulate the therapy. Moreover, the integration of these methods into a clinically usable software prototype as well as some insights into the evaluation of the simulation will be demonstrated.