

**Oberseminar der Numerik am 17.07.14**

Es trägt Herr Dr. Alf Gerisch (TU Darmstadt) vor zu folgendem Thema

***Numerical techniques for non-local models of cancer invasion***

Abstract:

Cancer invasion is a complex process occurring across several spatial and temporal scales, perhaps the three most important ones being the intracellular, the cellular, and the tissue scale. We consider a model of cancer invasion at the tissue scale. This model accounts for the interactions between cancer cells and the extracellular matrix. In particular, adhesive interactions between the cancer cells themselves as well as between the cells and the matrix give rise to a spatially non-local term in the model. Such a non-local term is also used in many other applications from mathematical biology and bioengineering. It constitutes a computational bottleneck of the modelling framework. We discuss a numerical technique based on FFT computations which can greatly speed up the evaluation of this term and thus enables for high-resolution, long-term simulation of the corresponding models