The research group *Numerical Analysis and Scientific Computing* at TU Darmstadt, with support by the DFG Priority Program SPP 1420 *Biomimetic Materials Research: Functionality by Hierarchical Structuring of Materials* and by the Graduate School of Excellence *Computational Engineering* at TU Darmstadt, is organizing the

International Workshop
Multiscale Models in Mechano and Tumor Biology: Modeling, Homogenization, and Applications

The workshop is aimed at presenting and discussing the state of the art and future perspectives in mathematical modeling and homogenization techniques with the focus on addressing key physiological issues in the context of multiphase healthy and malignant biological materials. The workshop will be interdisciplinary by bringing together scientists with complementary expertise, such as pure and applied mathematicians, engineers, and biophysicists. As part of the workshop, there will be a half-day introductory course on asymptotic homogenization. This is particularly intended to introduce PhD students and postdocs to this topic.

Date and location
September 28-30, 2015 at the Technische Universität Darmstadt, Darmstadt, Germany.

Workshop topics
- Multiscale and mathematical modeling of
  - hierarchical (biological) materials,
  - multiphase and fiber reinforced composites,
  - fluid and drug transport in healthy and malignant tissues.
- Innovative homogenization techniques for multiscale models including
  - asymptotic homogenization,
  - representative volume element techniques,
  - average field approaches.
- Numerical challenges and novel methods in the simulation of multiscale models.

Invited speakers
- Kay Raum, Charité - Universitätsmedizin Berlin, Germany
- Quentin Grimal, Laboratoire d'Imagerie Biomédicale (LIB), UPMC Paris, France
- Alfio Grillo, Politecnico di Torino, Italy
- Rebecca Shipley, University College London, UK
- Raimondo Penta, Technische Universität Darmstadt, Germany
- Alessandro Musesti, Università Cattolica del Sacro Cuore di Brescia, Italy

Contributed talks and posters
Participants are invited to present a 20 minute research talk (incl. discussion) or a poster.

Organizers and further information
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