Einladung zum

Würzburger Mathematischen Kolloquium

Julius-Maximilians-Universität Würzburg • Fakultät für Mathematik und Informatik

Prof. Dr. Günter Leugering

Friedrich-Alexander-Universität Erlangen-Nürnberg

Optimization of Materials and Processes in the Context of Partial Differential Equations

Mittwoch, den 13. Nov. 2013 • 16:15 Uhr
Mathematik Ost (Emil-Fischer-Straße 40), Seminarraum SE 40 (Raum 00.001)

Inhaltsangabe

Metamaterials have recently achieved a lot of attention in material sciences, optics and acoustics. They exhibit properties that do not exist in natural bulk material.

As an example, auxetic materials are those having a negative Poisson ratio which means that upon stretching the material in one direction it expands in the perpendicular direction instead of shrinking.

Similarly, optical materials may be designed to exhibit a negative refraction index, thereby 'inverting' Fresnel's law. Material optimization aims at designing functional material by suitably changing its cellular microstructure via mathematical optimization techniques including shape and topology optimization. From a mathematical point of view this can be reframed as optimization or control in the coefficients of a partial differential equation. As also dynamic processes are involved, this leads to optimal control problems on networked domains. The talk should give insight in the mathematical modeling and the optimization strategies and their perspectives in real applications.

Zu diesem Vortrag laden wir Sie herzlich ein.
Im Anschluss an die Vorträge Kaffee und Tee im Foyer vor dem SE 40.

Die Dozentinnen und Dozenten der Mathematik