INSTITUT FÜR ANGEWANDTE ANALYSIS UND NUMERISCHE SIMULATION

mathematik ians

Universität Stuttgart

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Vortragsankündigung Oberseminar

Sommersemester 2018

14:00 Uhr im Seminarraum 7.122

14.06.2018 **Prof. Dr. GP Raja Sekhar** (Indian Institute of Technology Kharagpur)

The role of anisotropy while pulling / squeezing an object in presence of a porous liquid interface

Abstract: This talk introduces the concept of anisotropic porous media with some examples. The talk then introduces two applications involving flow through anisotropic porous media, namely, mechanics of break-out phenomenon while pulling a large object from an anisotropic porous bed, squeeze flow between a bearing and a porous bed. The former has direct application in salvaging sunken ships, submersible - engineering etc. while the latter has application to lubrication in human knee joint. Some results will be discussed to witness the impact of anisotropy. In case of pulling an object, the variation of the lift-up force to overcome the suction force with changing anisotropy will be discussed. In case of squeezing process, for a prescribed constant load, the time duration during which a healthy human knee remains fluid lubricated will be estimated.

Alle Interessenten sind herzlich eingeladen!

Die Professoren des Instituts für Angewandte Analysis und Numerische Simulation

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```
39 typedef Dune::ACFem::MassModel<EllipticModelType> MassModelType;
40 MassModelType bareMassModel(implicitEllipticModel);
41
42 auto massModel(mu * (mat.Z_a) * J + mat.Z_w) * bareMassModel);
```