Temple University Mathematics Colloquium

Yuliya Gorb

Texas A & M University

will speak on

Discrete network approximation for determining asymptotics of effective properties of high contrast densely packed composites

ABSTRACT: A blow up of effective properties of high contrast composites with particles close to touching is of interest. The goal is to derive and justify asymptotic formulas for effective properties of such composites as a characteristic interparticle distance tends to zero. A derivation and justification is done by constructing a so-called discrete network approximation. The main idea of this approximation is based on a reduction of the original continuum problem described by partial differential equations with rough coefficients to a discrete problem on a graph, called a discrete network. The approach is illustrated by considering a highly packed suspension of rigid particles in a Newtonian fluid (vectorial problem), and a medium of finite conductivity with perfectly conducting particles (scalar problem).

Wednesday, 28 January 2009
Lecture at 4:00 pm
Coffee, tea, and refreshments from 3-5 pm
Room 617, Wachman Building
Department of Mathematics