

数学与系统科学研究院

计算数学所学术报告

报告人: Prof. Du Qiang

(Penn State University)

报告题目:

A nonlocal framework for the
analysis of peridynamic models

邀请人: 陈志明研究员

报告时间: 2010年1月5日(周二)

上午 10:00—11:00

报告地点: 科技综合楼三层 311

计算数学所报告厅

Abstract:

Peridynamics has been proposed by Silling as a new

continuum materials theory which incorporates the modeling of long-range forces within a continuous body and allows a consistent atomistic to continuum coupling. In the first part of the talk, we present a mathematical framework for a nonlocal calculus of vector-valued functions which mimics the classical differential/integral calculus. It is then used to analyze the peridynamic continuum models which is the focus of the second part of the talk. We address some basic questions on the well-posedness of the models. and consider their relations to the classical PDE models of continuum mechanics. Implications on the accuracy of finite dimensional numerical approximations to the peridynamic models will also be discussed. (This is a joint work with Kun Zhou of Penn State Univ, Max Gunzburger of Florida State Univ and Rich Lehoucq of Sandia National Lab. Much of the talk on nonlocal calculus should be accessible to any graduate student.)

欢迎大家参加！