

Department of Mathematical Sciences

Colloquium

Candidate for Tenure-Track Applied Math Position, Dept. of Mathematical Sciences

Dr. Pablo Seleson

Institute for Computational Engineering and Sciences
The University of Texas at Austin

Multiscale Material Modeling with Mesoscopic Models

Multiscale modeling has been recognized in recent years as an important research field to achieve feasible and accurate predictions of complex systems. In this talk, I will discuss the use of mesoscopic models as a means to bridge disparate scales in materials. An example of a mesoscopic model is peridynamics, a nonlocal reformulation of classical continuum mechanics based on integral equations. Nonlocal models possess length scales, which can be controlled for multiscale modeling. I will introduce the peridynamics theory of solid mechanics and show analytical and numerical connections of peridynamics to molecular dynamics and classical continuum mechanics. I will also present multiscale methods to concurrently couple peridynamics and classical elasticity, demonstrating the capabilities of mesoscopic models towards multiscale material modeling.

Thursday, January 23, 2014 at 3 pm
In Bell Hall 143
The University of Texas at El Paso

Refreshments will be served 15 minutes prior to start of the colloquium

For further information, please contact Dr. Ming-Ying Leung, 915-747-6836
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