Mathematics, Statistics, and Computer Science   **@ UIC**

Departmental Colloquium

Numerical Simulation of Wave Propagation

David Nicholls (UIC)

Abstract: The interaction of waves (acoustic, electromagnetic, elastic) with layered media plays an important role in many scientific problems. Among these are seismic imaging, underwater acoustics, biosensing, and solar cells. The ability to simulate scattered fields from these structures in a robust and highly accurate fashion is of fundamental importance. In this talk we will describe a class of rapid and highly accurate boundary perturbation schemes, termed "High–Order Perturbation of Surfaces'' (HOPS) Methods, for delivering such numerical approximations. Time permitting we will describe our efforts to not only detect layered media geometries based upon far–field data, but also design these structures to have optimal scattering properties.

Tea at 4:15 PM in SEO 300

Friday, December 4 at 3:00 PM in SEO 636