

CALIFORNIA STATE UNIVERSITY, LONG BEACH

THE MATHEMATICS COLLOQUIUM

Presents

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Speaking on

Image Segmentation and Artifact Correction in Ultrasound Images

Friday, March 20, 2009

12:00noon – 1:00pm

FO3-200A

Abstract: Spatial variations of attenuation across tissue layers can result in shadowing and enhancement in ultrasound B-scan images. These artifacts affect the underlying signal backscatter which is the main component of ultrasound images and has clinical significance in detecting diseases and tumors. We present a PDE-based approach to separate the attenuation effects from the signal backscatter and correct the artifacts via functional minimization. A three-step alternating minimization procedure is adopted to compute the numerical solutions. Furthermore, the existence, uniqueness, stability and convergence results for the minimization problems are proved.