

**Title:** Multiscale/multiresolution analysis of surfaces and applications

**Abstract:**

We will study and develop computational tools for reconstruction and geometry modeling of 3D shapes and surfaces using variational/geometric PDEs and multiresolution tools such as wavelet and wavelet frame representations of surfaces. Based on these tools, further applications to surface processing and shape analysis, such as comparison and classification of shapes based on intrinsic geometric quantities, will be studied. Extension to high dimensional manifold learning for data analysis will be discussed.

**Lectures/leaders:** Bin Dong (University of Arizona), Zuwei Shen (National University of Singapore), Hongkai Zhao (University of California, Irvine)

**Course format:**

The course is consisted of lectures, independent reading, learning seminars and research projects.

**Participants (8-10):**

We encourage students with strong motivation and interest in doing research in computational mathematics.

**Requirements:** Some background in programing to apply.

**Date:** 7/15-8/2, 2013