



Special Colloquium

DR. RONGJIE LAI

OF THE UNIVERSITY OF SOUTHERN CALIFORNIA

“Numerical PDEs on manifolds and applications to manifold processing”

Abstract:

Rapid development of data acquisition technology stimulates research on analyzing and processing manifold-structured data for many problems in medical image analysis, computational biology, material science as well as social network. In practice, these data might be represented as surfaces in \mathbb{R}^3 , or as point clouds sampled from k -dim manifolds in \mathbb{R}^n . It is challenging to conduct computation and further extract intrinsic and global information for these data sets, due to the lack of natural global parameterization or good basis for representation as problems defined on Euclidean domain. In this talk, I will first present our work on surface geometric information extraction and applications on medical image analysis using solutions of natural defined PDEs, for instance the Laplace-Beltrami eigenproblem and its conformal deformation, on surfaces. After that, I will discuss our recent numerical methods for solving geometric PDEs on high dimensional manifolds represented by point clouds and also demonstrate applications to geometric understanding of point clouds.

Tuesday, February 26th

The 2nd Floor of the Surge Building, Room 284

Tea, Coffee & Cookies at 3:40 p.m.

The Talk Begins at 4:10 p.m.

And Ends at 5:00 p.m.

UCR

Mathematics

Department

UC Riverside

900 University Avenue
Surge Building 2nd Floor
Riverside, CA
92521

Phone: 951-827-3113



Department of
Mathematics