Department of Mathematics
The Institute of Mathematical Sciences
The Chinese University of Hong Kong

數學系
數學科學研究所
香港中文大學

Phone: (852) 2609 7988 / 7989 • Fax: (852) 2603 5154 • Email: dept@math.cuhk.edu.hk
Phone: (852) 2609 8036 / 8038 • Fax: (852) 2603 7636 • Email: ims@ims.cuhk.edu.hk
Rm. 220, Lady Shaw Building, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong
Unit 601, Academic Building No. 1, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong

Hong Kong Geometry Colloquium

Saturday, 9 October 2010
Room 502A, Academic Building No.1, CUHK

The Existence of Hamiltonian Stationary Lagrangians

by

Professor Yng-Ing Lee
National Taiwan University

at

9:30 a.m. - 10:30 a.m.

Abstract: Hamiltonian stationary Lagrangians are Lagrangian submanifolds that are critical points of the area functional under Hamiltonian deformations. They are generalizations of special Lagrangians. By applying singular perturbation, we show the existence of many compact Hamiltonian stationary agrangians in every compact symplectic manifold with a compatible metric. Better results can be obtained in Kahler manifolds, and a criterion which ensures the existence of a smooth family of Hamiltonian stationary Lagrangian tori is also derived. The first mentioned result is a joint work with Joyce and Schoen.

Computational Quasi-Conformal Geometry and its Applications to Medical Morphometry

by

Professor Ronald Lui
The Chinese University of Hong Kong

at

11:00 a.m. - 12:00 noon

Abstract: Medical morphometry is an important area in medical imaging for disease analysis. Its goal is to systematically analyze anatomical structures of different subjects, and to generate diagnostic images to help doctors to visualize abnormalities. Quasiconformal(QC) Teichmuller theory, which studies the distortions of the deformation patterns between shapes, is a useful tool for this purpose. In practice, anatomical structures are usually represented discretely by triangulation meshes. In this talk, I will firstly describe how QC geometry can be discretized onto discrete meshes. This gives a discrete analogue of QC geometry on meshes. Then, I will talk about how computational QC geometry can be practically applied to medical imaging for disease analysis.

This is a joint work with Prof. Shing-Tung Yau, Prof. Tony F. Chan and Prof. Xianfeng Gu.

~ All Are Welcome ~