The Hong Kong University of Science and Technology

Department of Mathematics

Hong Kong Geometry Colloquium

On the geometry of critical virtual manifolds

By

Prof. Young-Hoon Kiem
Seoul National University

Abstract

Compact Kahler manifolds have nice properties such as fundamental classes, Poincare duality, Hodge decomposition and Lefschetz theorems, which are well known to be fundamental tools in complex algebraic geometry. All these nice properties fail as soon as singularities are allowed. In this talk, I will discuss the geometry of critical virtual manifolds (CVMs) which are obtained by gluing critical loci of holomorphic functions on complex manifolds. I will show that CVMs admit virtual fundamental classes as well as natural cohomology theories with all the above mentioned nice properties, even at the presence of singularities. Examples include all complex manifolds and moduli spaces of stable sheaves on Calabi-Yau 3-folds. If time permits, applications to curve counting will be also discussed. This talk is based on a joint work with Jun Li.

Date   : Saturday, 18 February 2017
Time   : 10:00a.m.-11:00a.m.
Venue   : Room 2404, Academic Building
(near Lifts 17&18), HKUST

Fukaya category of Landau-Ginzburg model

By

Prof. Hui-Jun Fan
Peking University

Abstract

In this report, I will give a rigorous mathematical construction of the Fukaya category of Laudau-Ginzburg model with a superpotential function W. It is originated from the study of the moduli problem of Witten equation with Lefschetz boundary condition. This is a joint work with Wenfeng Jiang and Dingyu Yang.

Date   : Saturday, 18 February 2017
Time   : 11:20a.m.-12:20p.m.
Venue   : Room 2404, Academic Building
(near Lifts 17& 18), HKUST

All are welcome !

Light refreshment will be provided at Room 3493 from 11:00 am to 11:20 am