THE UNIVERSITY **OF HONG KONG**

Institute of Mathematical Research
Department of Mathematics

Geometry Seminar

Donaldson-Thomas theory for Calabi-Yau four-folds

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Abstract

Let X be a compact complex Calabi-Yau four-fold. Under certain assumptions, we define Donaldson-Thomas type deformation invariants (DT_4 invariants) by studying moduli spaces of solutions to the Donaldson-Thomas equations on X. We also study sheaves counting problem on local Calabi-Yau four-folds. We relate DT_4 invariants of K_Y to the Donaldson-Thomas invariants of the associated Fano three-fold Y. In some special cases, we prove a DT_4/GW correspondence for X. When the Calabi-Yau four-fold is toric, we use the virtual localization formula to define the equivariant DT_4 invariants. There is a related work by D. Borisov and D. Joyce. We will mention their work and compare it with ours. This is a joint work with Naichung Conan Leung.

Date: October 20, 2014 (Monday)

Time: 4:00 – 5:00pm

Place: Room 210, Run Run Shaw Bldg., HKU

All are welcome