Hong Kong Geometry Colloquium

January 4, 2014 (Saturday)
Room 502A, Academic Building No. 1, CUHK

Homological Mirror Functor via Counting Polygons

by
Professor Cheol-Hyun Cho
Seoul National University
at
10:00am - 11:00am

Abstract: We propose a new method to define mirror potential W from immersed Lagrangian in a space X, called generalized Strominger-Yau-Zaslow method. In this setting, we define a canonical functor from the Fukaya category of X to the matrix factorization category of W via counting J-holomorphic polygons, which explains geometric origin of homological mirror symmetry.

When X is an orbifold sphere with three orbifold points of $Z/a, Z/b, Z/c$, we get a mirror Landau-Ginzburg potential W with leading order terms $x^a+y^b+z^c - \sigma xyz$, and we prove that the corresponding canonical functor gives an equivalence when $1/a+1/b+1/c \leqq 1$, proving homological mirror symmetry. This is a joint work with Hansol Hong and Siu-Cheong Lau.

Cubics, Squares and Lines

by
Professor Sergey Galkin
National Research University Higher School of Economics
at
11:20am - 12:20pm

Abstract: There is a universal linear relation between a cubic hypersurface and two auxiliary varieties, parametrising lines and pairs of points on it. It holds in the Grothendieck ring of varieties, and by various specializations one easily derives corollaries. Some are classical, such as 27 lines on a cubic surface or Hodge structures of the variety of lines, some are new. This is a joint work with Evgeny Shinder.

*There will be a tea break at 11:00-11:20a.m. and lunch at 12:45 – 2:15p.m.

All are Welcome!