



ENUMERATIVE GEOMETRY SEMINAR

Speaker: Hyeonjun Park KIAS

Time: Thu. June 12th, 14:00 - 16:00 Venue: SIMIS room TBA

Lagrangian classes, Donaldson-Thomas theory, and gauged linear sigma models

Abstract: In this talk, I will explain the construction of Lagrangian classes for perverse sheaves in cohomological Donaldson-Thomas theory, whose existence was conjectured by Joyce. The two key ingredients are a relative version of the DT perverse sheaves and a hyperbolic version of the dimensional reduction theorem. As a special case, we recover Borisov-Joyce/Oh-Thomas virtual classes in DT4 theory.

As applications, I will explain how to construct the following structures from the Lagrangian classes: (1) cohomological Hall algebras for 3-Calabi-Yau categories, (2) relative Donaldson-Thomas invariants for Fano 4-folds with anti-canonical divisors, (3) refined surface counting invariants for Calabi-Yau 4-folds, (4) cohomological field theories for gauged linear sigma models.

This is joint work in progress with Adeel Khan, Tasuki Kinjo, and Pavel Safronov.

