

BOSTON UNIVERSITY GEOMETRY AND PHYSICS SEMINAR

ENUMERATIVE GEOMETRY VIA NON-COMMUTATIVE DEFORMATIONS

Yukinobu Toda

Kavli Institute for the Physics and Mathematics of the Universe

November 11, 2015, 4:00 – 5:00pm
Math/Computer Science, Room 148
111 Cummington Street, Boston

Tea: 3:45pm in Room 144

Abstract: Non-commutative deformation theory of a module over an algebra was introduced by Laudal in 2002, which was later developed by Eriksen, Segal and Efimov-Lunts-Orlov in geometric setting. In 2013, Donovan-Wemyss used the universal non-commutative deformation algebras of floppable curves inside 3-folds (which they called contraction algebras) to construct twist functors which describe flop-flop derived equivalences. In the last year, I showed that the dimensions of Donovan-Wemyss's contraction algebras are described by Katz's genus zero Gopakumar-Vafa invariants. In this talk, I will show the existence of certain global non-commutative structures on the moduli spaces of stable sheaves in a general setting. This result enables me to develop 'non-commutative enumerative geometry' of sheaves on Calabi-Yau 3-folds which leads to the generalization of the dimension formula of contraction algebras.

See <http://math.bu.edu/research/geom/seminar.html> or contact Siu Cheong Lau lau@math.bu.edu for more information.