

Stanford Algebraic Geometry

— Seminar —

ON THE CATEGORIFICATION OF DONALDSON-THOMAS INVARIANTS

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Donaldson-Thomas invariants have attracted much attention lately, because of their connection to Gromov-Witten invariants of Calabi-Yau threefolds. In earlier work, I showed that Donaldson-Thomas invariants are certain weighted Euler characteristics of the moduli space of sheaves. My goal is now the construction of a cohomology theory which underlies these weighted Euler characteristics. A “toy model” for Donaldson-Thomas type moduli spaces is the intersection of two Lagrangian submanifolds inside a (complex) symplectic manifold. Thus a natural starting point for this program is to construct the required cohomology theory for such Lagrangian intersections. If the symplectic manifold is a cotangent bundle, the required cohomology theory is not difficult to write down. In recent research, I was able to show that this construction globalizes, i.e., it depends only on the symplectic structure. This gives rise to a kind of ‘virtual’ de Rham type cohomology theory for Lagrangian intersections.

Friday, February 2

3:15 p.m.

Room 383-N

<http://math.stanford.edu/ag/s0607/>