

Combinatorics of Donaldson–Thomas and Pandharipande–Thomas invariants

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007 Kemeny Hall, 4:00 pm
(Tea 3:30 pm 300 Kemeny Hall)

Abstract

I will discuss a combinatorial problem which comes from algebraic geometry. The problem, in general, is to show that two theories for “counting” algebraic curves in a complex three dimensional space X give the same answer. I will prove a combinatorial version of this, in a special case (X is toric Calabi–Yau), where the difficult geometry reduces to tricky, but elementary, combinatorics. The combinatorial objects in question are plane partitions, perfect matchings on the honeycomb mesh, and related structures.

There will be many pictures. This is a combinatorics talk, so no algebraic geometry will be used once I explain where the problem is coming from.