Communication brève
« Espaces de modules, systèmes intégrables et récurrences topologiques »
9-13 janvier 2016

Short talk
"Moduli spaces, integrable systems, and topological recursions"
January 9-13, 2016

Donaldson-Thomas theory and crepant resolutions

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For a fixed Calabi-Yau threefold X, Donaldson-Thomas (DT) theory, roughly, is the study of certain Euler characteristics of Hilbert schemes of curves in X. If X is an orbifold with crepant resolution Y, Bryan, Cadman, and Young conjectured that the DT theory of X and Y should be related in a simple way. We prove this conjecture in the toric setting. In this talk, I'll begin by describing the basic notions of DT theory and motivate them through the concrete example of toric varieties. I'll explain how these notions generalize to orbifolds and describe some of the techniques used in the proof of the correspondence.

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