Institut Henri Poincaré

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String Theory in Greater Paris

Rencontres Théoriciennes

"Supergravité, théorie des cordes et théorie M"

Jeudi 3 Octobre 2019, 10:00

Boris Pioline

LPTHE

BPS black holes, wall-crossing and mock modular forms

In type II strings compactified on a Calabi-Yau threefold, BPS black hole microstates are counted by generalized Donaldson-Thomas invariants. The latter exhibit well-understood but complicated wall-crossing phenomena. Using constraints from string dualities, I will argue that the generating function of DT invariants supported on a 4-cycle must be in general be a mock modular form of higher depth, a concept which I will explain and illustrate. This generating function is closely related to the elliptic genus of the Maldacena-Strominger-Witten superconformal field theory on a wrapped M5-brane, and to the partition function of topologically twisted N=4 Yang-Mills theory on a wrapped D4-brane.

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