Institut Henri Poincaré

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String Theory in Greater Paris

Rencontres Théoriciennes

"Supergravité, théorie des cordes et théorie M"

Jeudi 20 Avril 2023, 11:45

Sergey Alexandrov

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Modularity of BPS black holes

I'll review the recent results on modular properties of generating functions of BPS indices counting states of D4-D2-D0 black holes in Calabi-Yau compactifications of type IIA string theory. These generating functions can be shown to be (higher depth) mock modular forms with a specific non-holomorphic modular completion. This result turns out to have a wider range of applicability than the original framework and has numerous applications ranging from compactifications with higher SUSY to Vafa-Witten theory. In the end, I'll show how one can determine the generating functions explicitly for compact Calabi-Yau threefolds with one Kahler modulus, and how this allows to overcome the usual limitations for computation of GV, DT and PT topological invariants.

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