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String Theory in Greater Paris

Rencontres Théoriciennes

“Supergravité, théorie des cordes et théorie M”

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How does N = 4 supergravity reproduce mock modularity ?

The Dijkgraaf-Verlinde-Verlinde conjecture states that all 1/4 BPS states in four dimensional string compactification with 16 supercharges have an (indexed) partition function given by a genus 2 (Siegel) modular form of weight -10. From this Siegel modular form, one can extract the (indexed) partition of those BPS states/black holes that are immune to wall crossing effects, and these functions are a one parameter family of mock Jacobi forms (of weight -10 and where the index is parametrized by the T-duality invariant magnetic charge). These mock Jacobi forms have been analyzed extensively and it is known how to recover both the one parameter family of mock Jacobi forms and the Siegel modular form itself using the Rademacher technique. However, the question of how the BPS black hole spectrum as computed in supergravity sees this mock modularity remains an open question. Progress towards this goal is reported in this talk, along with a comprehensive introduction to the problem.

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