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Exact results and microstate counting formulae for BPS black holes in the N=2 STU model

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We consider the N=2 STU model of Sen and Vafa. Using its exact duality symmetries, we determine the holomorphic function F that encodes the Wilsonian effective action of the model. We then evaluate the quantum entropy for dyonic BPS black holes in this model, in a certain region of moduli space. We propose a microstate counting formula based on a Siegel modular form of weight 2 as well as on a modular object that takes into account the dependence on the modulus X^0 . In passing, we point out connections with the Calogero model and with deformation quantization.

Primary author: LOPES CARDOSO, Gabriel

Presenter: LOPES CARDOSO, Gabriel