Institut Henri Poincaré

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String Theory in Greater Paris

Rencontres Théoriciennes

“Supergravité, théorie des cordes et théorie M”

Jeudi 12 Novembre 2020, 11:00

Nikolay Bobev

KU leuven

The unreasonable effectiveness of higher-derivative supergravity in AdS4 holography

I will describe the four-derivative corrections to four-dimensional N=2 minimal gauged supergravity and show that they are controlled by two constants. Interestingly, the solutions of the equations of motion in the two-derivative theory are not modified by the higher-derivative corrections. I will use this to arrive at a general formula for the regularized on-shell action for any asymptotically locally AdS4 solution of the theory and show how the higher- derivative corrections affect black hole thermodynamic quantities in a universal way. I will employ these results in the context of holography to derive new explicit results for the subleading corrections in the large N expansion of supersymmetric partition functions on various compact manifolds for a large class of three-dimensional SCFTs arising from M2- and M5-branes. I will also briefly discuss possible extensions and generalizations of these results.

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