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Partition functions of three-dimensional pure gravity. (English) Zbl 1154.83306

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Summary: The three-dimensional pure quantum gravity with a negative cosmological constant has been conjectured to be dual to an extremal conformal field theory (ECFT), of central charge $c = 24k$ for some positive integer k . We compute the partition function of the dual ECFT by summing over gravitational instanton contributions. In particular, we conjecture an exact expression for the contribution from handlebodies to the partition function for all genera and all values of k and provide non-trivial evidences for the conjecture at genus two.

MSC:

83C45 Quantization of the gravitational field

83C80 Analogues of general relativity in lower dimensions

81V17 Gravitational interaction in quantum theory

Cited in **30** Documents

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