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Conformal Dilaton Gravity and Warped Spacetimes in 5D

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We applied the conformal dilaton gravity model on a BTZ-like black hole spacetime in five dimensions using the warped Randall-Sundrum-1 variant.
We find exact (t, r)-dependent solutions for the dilaton field and the metric components, written as $g_{\mu\nu} = \omega^{\frac{4}{n-2}} \tilde{g}_{\mu\nu}$, from the 5D Einstein equations, as well as from the induced 4D Einstein equations on the brane.
Next, we write ${}^{(4)}\tilde{g}_{\mu\nu} = \bar{\omega}^{2\,(4)}\bar{g}_{\mu\nu}$.
The free parameters of the solution can be chosen in such a way that the spacetime is singular-free.
The location of the horizon(s) and the ergosphere of the induced 4D spacetime are also determined by the gravitational field outside the brane.
This solution can also be used to calculate the functional integration over ω and then over $\tilde{g}_{\mu\nu}$ for the effective action.
The energy-momentum tensor for the dilaton field, as well as the surface gravity of the horizon determining the Hawking radiation, can be calculated exactly.
Because the use of a "large" extra dimension results in a fundamental Planck scale comparable with the electroweak scale, one can possible construct, although here without matter, a finite, renormalizable and anomaly-free effective action. A connection is made with the antipodal mapping in connection with the complementarity issue.

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