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Higher-curvature gravity in AdS3, c-theorems and hairy black holes

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We show that, in general three-dimensional higher-curvature gravity, imposing a simple holographic c-theorem as well as a single vacuum allows for the existence of a family of hairy black hole solutions. These solutions, which exist in a special point in the theory space, correspond to a generalization of the usual the Bañados-Teitelboim-Zanelli black hole. We compute the thermodynamic quantities of these solutions and verify the Cardy formula.

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