

Black hole extended thermodynamics

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We use certain compatibility conditions in the formalism of geometrothermodynamics and the non-extensivity property of black holes to argue that the corresponding fundamental equations should be given in terms of quasi-homogeneous functions. As a result, coupling constants in alternative theories of gravity, such as the cosmological constant, the Born-Infeld constant, etc., turn out to be thermodynamic variables, leading to extensions of classical black hole thermodynamics.

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