

Modified gravity emerging from thermodynamics and holographic principle

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We discuss three different corrections to the area law of entropy. The number of bits S_N is then modified according to the form of entropy, and the law of gravity is obtained by using the method developed by Verlinde. We also discuss the effect of the entropy correction on the Friedmann equation, and we find that the Friedmann equation got an extra term H^4 , which can be used to explain the current accelerating expansion of the universe. The result suggests that dark energy may be an emergent phenomenon based on the holographic principle and thermodynamics.

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