

## **Dilaton-Einstein-Gauss-Bonnet Gravity and its Cosmological Implication**

The dilaton-Einstein-Gauss-Bonnet(dEGB) Gravity is one of the simplest extensions of Einstein's gravity with the higher curvature term. After some motivation to go beyond Einstein's Gravity models, we briefly describe the dEGB model through the black holes. Unlike Einstein's gravity, we explain the existence of a minimum mass below which the black hole cannot be formed, which is the most prominent property. Then, we move on to the implication of this theory on the cosmological evolution. The major message is that it opens new possible phases: "Slow-roll", "fast-roll", and "kination" at the higher temperatures, in addition to the well-accepted radiation dominant, matter dominant, and cosmological constant dominant phases of the standard cosmological model. We also mention briefly the WIMP physics and gravitational waves to put the bounds on the parameters of dEGB gravity theory.

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