Short talk

NONSINGULAR BIG BANG IN NONLOCAL MODIFIED GRAVITY

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After discovery of accelerating expansion of the Universe, there has been a renewed interest in gravity modification. One of promising approaches is nonlocal modification with the scalar curvature R in the action replaced by a suitable function $F(R,\Box)$, where $\Box$ is D'Alembert (Laplace-Beltrami) operator. In particular we analyze the modification in the form

$$S = \int \left(\frac{R - 2\Lambda}{16\pi G} + R^p F(\Box) R^q \right) \sqrt{-g} d^4x$$

where is $F(\Box)$ an analytic function. We present a few a(t) nonsingular bounce cosmological solutions for the above two actions using FLRW metric.