

# Nonsingular Big Bang solutions 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  $\mathcal{F}(R, \square)$ , where  $\square$  is the Laplace-Beltrami operator. In particular we analyze the modification in the form

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

where  $\mathcal{F}(\square)$  is an analytic function. We present a few  $a(t)$  nonsingular bounce cosmological solutions for the above action using *FLRW* metric.

This is joint work with Branko Dragovich, Zoran Rakić and Jelena Stanković.

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