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SEMINAR ZAVODA ZA TEORIJSKU FIZIKU

Observational parameters in a braneworld inflationary scenario

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Abstract:

In this talk the results will be presented obtained by a software we developed for computing observational cosmological inflation parameters: the scalar spectral index (n_S) and the tensor-to-scalar ratio (r) for a braneworld inflationary scenarios.
We have studied a tachyon cosmological model based on the dynamics of a 3-brane in the second Randall-Sundrum (RSII) model extended to include matter in the bulk. The presence of matter modifies the RSII cosmology and tachyon potential. We have studied different types of tachyonic potential (inverse power law, exponential and inverse cosh) in the context of braneworld cosmology. The calculated numerical values of observational parameters are compared with the latest observations by the Planck Collaboration (2018).
The program is written in C/C^{++}. The *GNU Scientific Library is used for some of the numerical computations and* R *language is used for data analysis and plots.*

The talk is based on the following papers:

1. *1. D.D. Dimitrijevic, N. Bili, G.S. Djordjevic, M. Milosevic, and M. Stojanovi, Tachyon Scalar Field in a Braneworld Cosmology, in International Journal of Modern Physics A, 2018 (submitted)*
2. *2. N. Bili, S. Domazet, and G.S. Djordjevic, Particle Creation and Reheating in a Braneworld Inflationary Scenario, Physical Review D, 96 (2017), 083518*
3. *3. N. Bili, S. Domazet, and G. S. Djordjevic, Tachyon with an inverse power-law potential in a braneworld cosmology, Class. Quantum Gravity 34, 165006 (2017)*

4. *4. N. Bili, D.D. Dimitrijevic, G.S. Djordjevic, and M.Milosevic, Tachyon Inflation in an AdS Braneworld with Backreaction, International Journal of Modern Physics A, 32 (2017)*

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