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Superheavy dark matter in R^2-cosmology

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The conventional Friedmann cosmology is known to be in tension with the existence of stable particles having interaction strength typical for supersymmetry and heavier than several TeV. A possible way to save life of such particles may be a modification of the standard cosmological expansion law in such a way that the density of these heavy relics would be significantly reduced. We study particle creation in the Starobinsky inflationary model for different decay channels of the scalaron. It is shown that in the process of thermalization superheavy stable particles with the coupling strength typical for the GUT SUSY could be created with the density equal to the observed density of dark matter.

Primary author(s) : Prof. ARBUZOVA, Elena (Dubna State University and Novosibirsk State University)

Presenter(s) : Prof. ARBUZOVA, Elena (Dubna State University and Novosibirsk State University)

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