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Supersymmetric standard model inflation in the Planck era[1]
NOBUCHIKA OKADA, University of Alabama, MASATO ARAI, Czech Technical University in Prague, Czech Republic, SHINSUKE KAWAI, Sungkyunkwan University, Korea — We propose a cosmological inflationary scenario based on the supergravity-embedded Standard Model supplemented by the right-handed neutrinos. We show that with an appropriate Kähler potential the L-H_u direction gives rise to successful inflation that is similar to the recently proposed gravitationally coupled Higgs inflation model but is free from the unitarity problem. The mass scale M_R of the right-handed neutrinos is subject to the seesaw relation and the present 2-σ constraint from the WMAP7-BAO-H_0 data sets its lower bound $M_R \gtrsim 1$ TeV. Generation of the baryon asymmetry is naturally implemented in this model. We expect within a few years new observational data from the Planck satellite clearly discriminates this model from other existing inflationary models arising from the same Lagrangian,and possibly yields stringent constraints on M_R.

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Nobuchika Okada
University of Alabama

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