

Discrete R-symmetry, Various Energy Scales and Gravitational Waves

We present a supersymmetric model where energy scales of a discrete R-symmetry breaking (Z_6R) and cosmic inflation are commonly attributed to the confinement scale of a hidden $Sp(2)$ strong dynamics. Apart from these, SUSY-breaking scale, the Higgsino mass and the right-handed neutrino masses are all shown to stem from Z_6R breaking scale inferred from CMB observables. We will show that the model is characterized by the SUSY-breaking soft mass $m \sim 100-1000\text{TeV}$ and the reheating temperature $T \sim 10^9\text{GeV}$. Then we discuss how these predictions of the model can be tested with the help of the spectrum of the gravitational wave induced by the short-lived cosmic string present during the reheating era.

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