

Abstract

We investigate brane inflation driven by two stacks of mobile branes in a throat. The stack closest to the bottom of the throat annihilates first with antibranes, resulting in particle production and a change of the equation of state parameter w . We calculate analytically some observable signatures of the collision; related decays are common in multi-field inflation, providing the motivation for this case study. The discontinuity in w enters the matching conditions relating perturbations in the remaining degree of freedom before and after the collision, affecting the power-spectrum of curvature perturbations. We find an oscillatory modulation of the power-spectrum for scales within the horizon at the time of the collision, and a slightly redder spectrum on super-horizon scales. We comment on implications for staggered inflation.