

In this talk we will discuss gauged M-flation, an inflationary model in which inflation is driven by three $N \times N$ scalar field matrices in the adjoint representation of $U(N)$ gauge group. We focus our study on the gauged M-flation model which could be derived from the dynamics of a stack of D3-branes in appropriate background flux. The background inflationary dynamics is unaltered compared to the ungauged case of [?], while the spectrum of “spectator species”, the isocurvature modes, differs from the ungauged case. Presence of a large number of spectators, although irrelevant to the slow-roll inflationary dynamics has been argued to lower the effective UV cutoff Λ of the theory from the Planck mass m_{pl} , invalidating the main advantage of M-flation in not having super-Planckian field values and unnaturally small couplings. Through a careful analysis of the spectrum of the spectators we argue that, contrary to what happens in N-flation models, M-flation is still UV safe with the modified (reduced) effective UV cutoff Λ , which we show to be of order $(0.5 - 1) \times 10^{-1} m_{pl}$. Moreover, we argue that the string scale in our gauged M-flation model is larger than Λ by a factor of 10 and hence one can also neglect stringy effects. We also comment on the stability of classical inflationary paths in the gauged M-flation.