

Homework 13

1. (60) Consider the example of massive potential

$$V(\phi) = V_0 \exp\left[-\sqrt{\frac{2}{p}} \frac{\phi}{M_{\text{Pl}}}\right]$$

and calculate

- (b) Hubble function 's dependence on the scalar field
- (c) time evolution of the Hubble function
- (d) time evolution of the scalar field,
- (e) time dependence of the scale parameter
- (f) and rate of the expansion acceleration $\frac{\ddot{a}}{a}$.