

$$V_G = -\frac{GM_T}{r} = -\frac{GM_T R_T^2}{R_T^2 r}$$

$$= -g \frac{R_T}{r/R_T} = -\frac{\Lambda}{r/R_T}$$

$$\frac{V_G}{\Lambda} = -\frac{1}{r/R_T}$$

$$r \leq R_T \quad E_G = -\frac{g}{R_T} r$$

$$\Delta V_G \Big|_r = - \int_r^{R_T} E_G(r) dr = \frac{1}{2} g R_T - \frac{1}{2} g \frac{r^2}{R_T}$$

$$V_G(R_T) - V_G(r) = \left(\dots \right)$$

$$V_G(r) = V_G(R_T) - \left(\dots \right)$$

$$V_F(r) = -\Lambda - \frac{1}{2} g R_{\pi} + \frac{1}{2} g \frac{r^2}{R_{\pi}}$$

$$= -\frac{\Lambda}{2} \left[3 - \left(\frac{r}{R_{\pi}} \right)^2 \right]$$

$r = R_{\pi}$
 $-\Lambda$
 $-\frac{3}{2}\Lambda$