

$$-k_{t0}\left(\varphi_1(t)-\varphi_2(t)\right)+k_{t0}\left(\varphi_2(t)-\varphi_3(t)\right)+i_{ym2}\varphi_2''(t)=c_{t0}(\dot{\varphi}_1-\dot{\varphi}_2)-c_{t0}(\dot{\varphi}_2-\dot{\varphi}_3)$$