

$$-k_{t0}\left(\varphi_4(t)-\varphi_5(t)\right)+k_{t0}\,\varphi_5(t)+i_{ym5}\,\varphi_5''(t)=\,c_{t0}(\dot{\varphi}_4-\dot{\varphi}_5)-c_{t0}\,\dot{\varphi}_5$$