

$$\ddot{Z}(t) + A_1 Z(t) \ddot{Z}(t) + A_2 Z(t)^2 \ddot{Z}(t) + A_3 Z(t) + A_4 Z(t)^2 + A_5 Z(t)^3 + A_6 Z(t)^4 + A_7 Z(t)^5 + A_8 V(t)^2 = 0,$$

$$A_1 = -0.144101238$$

$$A_2 = 0.5625$$

$$A_3 = \frac{0.0007}{\alpha^4} \left(2 \cdot 768088 \cdot 10^5 \alpha^2 + 1.384400440 \cdot 10^5 \alpha^4 + 1.38440044 \cdot 10^5 \right)$$

$$A_4 = \frac{0.00070}{\alpha^4} \left(-3.98983711 \cdot 10^5 \alpha^2 - 1.9949381 \cdot 10^5 \alpha^4 - 1.99491851 \cdot 10^5 \right)$$

$$A_5 = \frac{0.000703}{\alpha^4} \left(1.55744951 \cdot 10^5 \alpha^2 + 7.7872524 \cdot 10^5 \alpha^4 + 4.153209 \cdot 10^5 \alpha^2 \zeta^2 v + 3.114999 \cdot 10^5 \zeta^2 + 7.78724474 \cdot 10^5 - 1.0383003301 \cdot 10^5 \alpha^2 \zeta^2 v^2 + 3.11490099 \cdot 10^5 \alpha^4 \zeta^2 \right)$$

$$A_6 = \frac{0.000703}{\alpha^4} \left(-59848156 \cdot 10^5 \alpha^2 \zeta^2 v - 4.787645 \cdot 10^5 \zeta^2 + 1.795467 \cdot 10^5 \alpha^4 \zeta^2 v^2 + 1.795367 \cdot 10^5 \zeta^2 v^2 - 4.7851645 \cdot 10^5 \alpha^4 \zeta^2 \right)$$

$$A_7 = \frac{0.000703}{\alpha^4} \left(2.336175742 \cdot 10^5 \alpha^2 \zeta^2 v + 1.946818 \cdot 10^5 \zeta^2 - 7.7872474 \cdot 10^5 \alpha^4 \zeta^2 v^2 - 7.7872474 \cdot 10^5 \zeta^2 v^2 + 1.946813118 \cdot 10^5 \alpha^4 \zeta^2 \right)$$

$$A_8 = -1.6211389382$$

$$\lambda = 0.11$$

$$\zeta = 2$$

$$\alpha = 1$$