

$$\begin{aligned} \dot{a}_{1,2} = & \frac{g^2 c_{21g} + c_{21}}{g^2 n_{2g} + n_2} a_{1,1} + \frac{g^2 c_{22g} + c_{22}}{g^2 n_{2g} + n_2} a_{1,2} + \frac{1}{\text{Re}} \left[ -\left(\frac{2\pi}{L}\right)^2 + \frac{g^2 d_{2g} + d_2}{g^2 n_{2g} + n_2} g^2 \right] a_{1,2} \\ & + \frac{g^2 e_{2g} + e_2}{g^2 n_{2g} + n_2} \frac{\dot{g}}{g} a_{1,2}, \end{aligned}$$