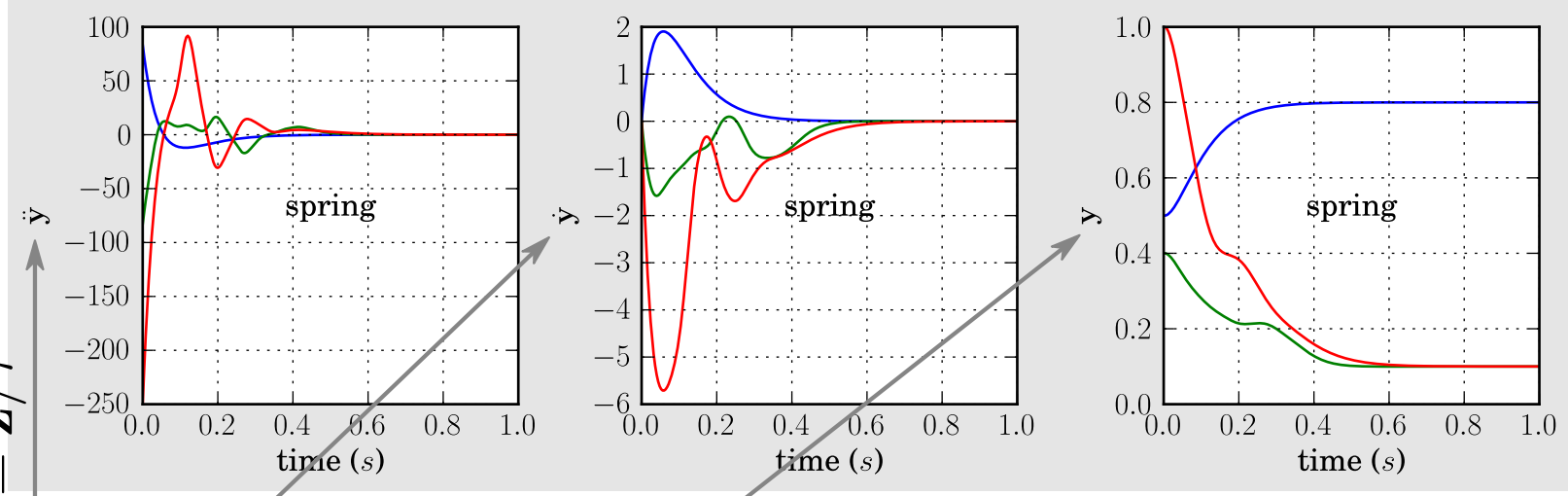

$$\ddot{\mathbf{y}} = \ddot{\mathbf{z}}/\tau$$

$$\begin{bmatrix} \dot{\mathbf{z}} \\ \dot{\mathbf{y}} \\ \dot{v} \end{bmatrix} = \begin{bmatrix} (\alpha_y(\beta_y(\mathbf{y}^g - \mathbf{y}) - \mathbf{z}) + v \cdot f(v))/\tau \\ \mathbf{z}/\tau \\ -\alpha_v v/\tau \end{bmatrix}$$