

$$\begin{aligned}
 \text{v}'_k &= \Gamma^+ [\mathbf{v}_k; \zeta_v] \equiv \text{v scaling} \left[\mathbf{v}_k \odot \exp \left(\frac{\varepsilon_v^k}{2} s_v^k (\zeta_{\mathbf{v}_k}) \right) - \frac{\varepsilon_v^k}{2} \left[\text{force scaling} \left[\partial_x S(x_k) \odot \exp \left(\varepsilon_v^k q_v^k (\zeta_{\mathbf{v}_k}) \right) + \text{translation} \left[t_v^k (\zeta_{\mathbf{v}_k}) \right] \right] \right] \right]
 \end{aligned}$$

$$\begin{aligned}
 \mathbf{x}'_k &= m^k \odot \mathbf{x}_k + \bar{m}^k \odot \Lambda^+ [\bar{\mathbf{x}}_k; \zeta_{\bar{\mathbf{x}}}] \equiv \text{x scaling} \left[\bar{\mathbf{x}}_k \odot \exp \left(\varepsilon_{\bar{\mathbf{x}}}^k s_{\bar{\mathbf{x}}}^k (\zeta_{\bar{\mathbf{x}}_k}) \right) + \varepsilon_{\bar{\mathbf{x}}}^k \left[\text{v scaling} \left[v'_k \odot \exp \left(\varepsilon_{\bar{\mathbf{x}}}^k q_{\bar{\mathbf{x}}}^k (\zeta_{\bar{\mathbf{x}}_k}) \right) + \text{translation} \left[t_{\bar{\mathbf{x}}}^k (\zeta_{\bar{\mathbf{x}}_k}) \right] \right] \right] \right]
 \end{aligned}$$