

Second-order Kick-Drift-Kick

$$\frac{d^2 \vec{x}}{dt^2} = \vec{a}(\vec{x})$$

$$v_{i+\frac{1}{2}} = v_i + \frac{1}{2}a_i\delta t$$

$$x_{i+1} = x_i + v_{i+\frac{1}{2}}\delta t$$

$$v_{i+1} = v_{i+\frac{1}{2}} + \frac{1}{2}a_{i+1}\delta t$$

$$t_{i+1} = t_i + \delta t$$