

1 Integrators

1.1 Velocity Verlet Algorithm

The velocity Verlet algorithm has iteration steps:

$$\begin{aligned}\mathbf{x}(t + \Delta t) &= \mathbf{x}(t) + \mathbf{v}(t)\Delta t + \frac{1}{2}\mathbf{a}(t)\Delta t^2 \\ \mathbf{v}(t + \Delta t) &= \mathbf{v}(t) + \frac{1}{2}(\mathbf{a}(t) + \mathbf{a}(t + \Delta t))\Delta t\end{aligned}$$

1.2 Runge-Kutta Method