

## Real time particle systems

### Lecture 11

## Announcement

### Bungie recruiting presentation

Date: Monday, March 10<sup>th</sup>  
Time: 5:30 – 7:00  
Location: **Upson B17**

There will be a presentation by Bungie engineers about what game development is like at Bungie, food and drinks will be provided and raffle for Halo3 and other Xbox games.

See Witkin and Baraff's slides  
linked from the course schedule.

## Fourth order Runge-Kutta

$$\begin{aligned}k_1 &= hf(\mathbf{x}_0, t_0) \\k_2 &= hf\left(\mathbf{x}_0 + \frac{k_1}{2}, t_0 + \frac{h}{2}\right) \\k_3 &= hf\left(\mathbf{x}_0 + \frac{k_2}{2}, t_0 + \frac{h}{2}\right) \\k_4 &= hf(\mathbf{x}_0 + k_3, t_0 + h) \\x(t_0 + h) &= \mathbf{x}_0 + \frac{1}{6}k_1 + \frac{1}{3}k_2 + \frac{1}{3}k_3 + \frac{1}{6}k_4.\end{aligned}$$