

Last time: we wrote codes: `lorenz.m`
`rk4singlestep.m`

Now, we will investigate how to integrate many
initial conditions (trajectories) efficiently

Idea 1: use 'for' loop and integrate each
particle one-at-a-time.

* Very slow in Matlab! Why?

Matlab scripts are not compiled, so every iteration
of the for loop, it re-translates your commands
into machine-code instructions.

Idea 2: * Alternative is to vectorize computation, so all
particles are passed through vector field at
the same time.

* much faster (100-1000x for our example)

because matrix operations in Matlab
are built on LAPACK, a highly optimized,
compiled Fortran package.