

# *Simulation Mode:*

*Simulation* mode is the default mode of *PhysicsWorld* and it is also the main mode to operate in since this is the mode in which the simulation is initialized and run, and where the frames for the *Reviewer* and *Trajectory* modes are created.

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The user controls the operation of the current simulation with the set of four buttons in the *Control Panel* of *PhysicsWorld*.

The *Init* button initializes the simulation and does the following:

- Updates the *WorldViews* and *Monitor* panels with the new set of particles, fields, boundaries, and connections.
- Erases all of the previously recorded simulation frames.
- Sets up the simulation at time zero.

If the simulation was running at the time the user presses *Init*, the simulation is initialized and the simulation immediately begins again starting at time zero.

The *Start* and *Stop* buttons toggle the simulation state. The *Step* button will step the simulation one frame ahead given the current time step.

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The time step of the simulation is set through a system of buttons, a pop-up list, and a slider. To allow for extreme changes in the time step, the user can change the time step by powers of ten and also with a pop-up list of typical values for time steps.

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Use the *skip frames* numbers to speed up display by only displaying the stepped number of frames or by only recording the desired stepped frames so that when it is necessary to have a small time step size simulation, you could still only display/record every few frames to make the *Reviewer* or *Trajectory* mode last longer in time.