Help
Double Slit Interference

Visual Quantum Mechanics

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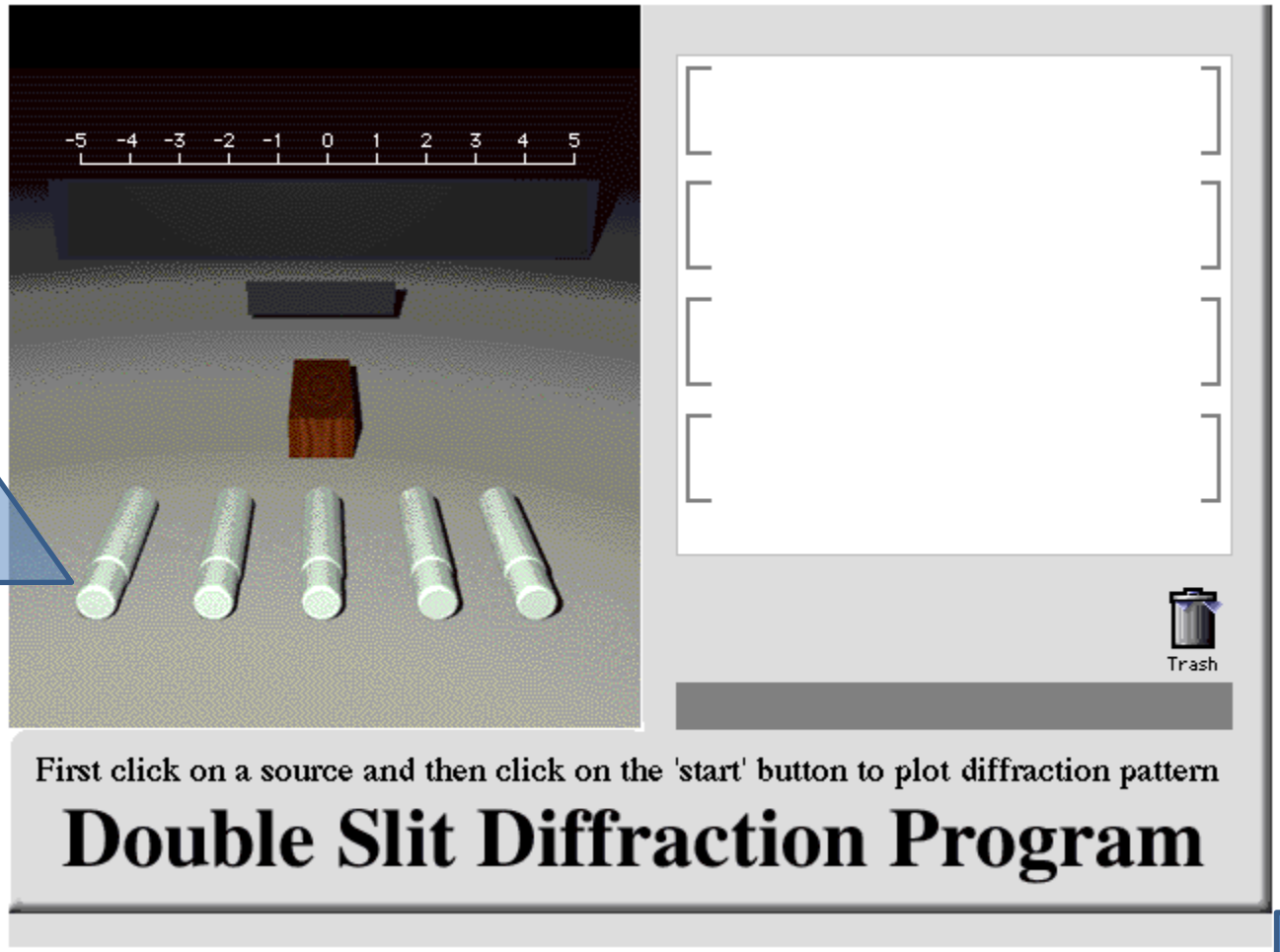
STEP 1: Choosing the Particle Source

Move the cursor over the particle sources (white cylinders), the label appears. As soon as you spot the source whose spectra you wish to observe, click on it. The existing source that is in the holder will retreat, and the chosen source appears ready to fire in the holder.



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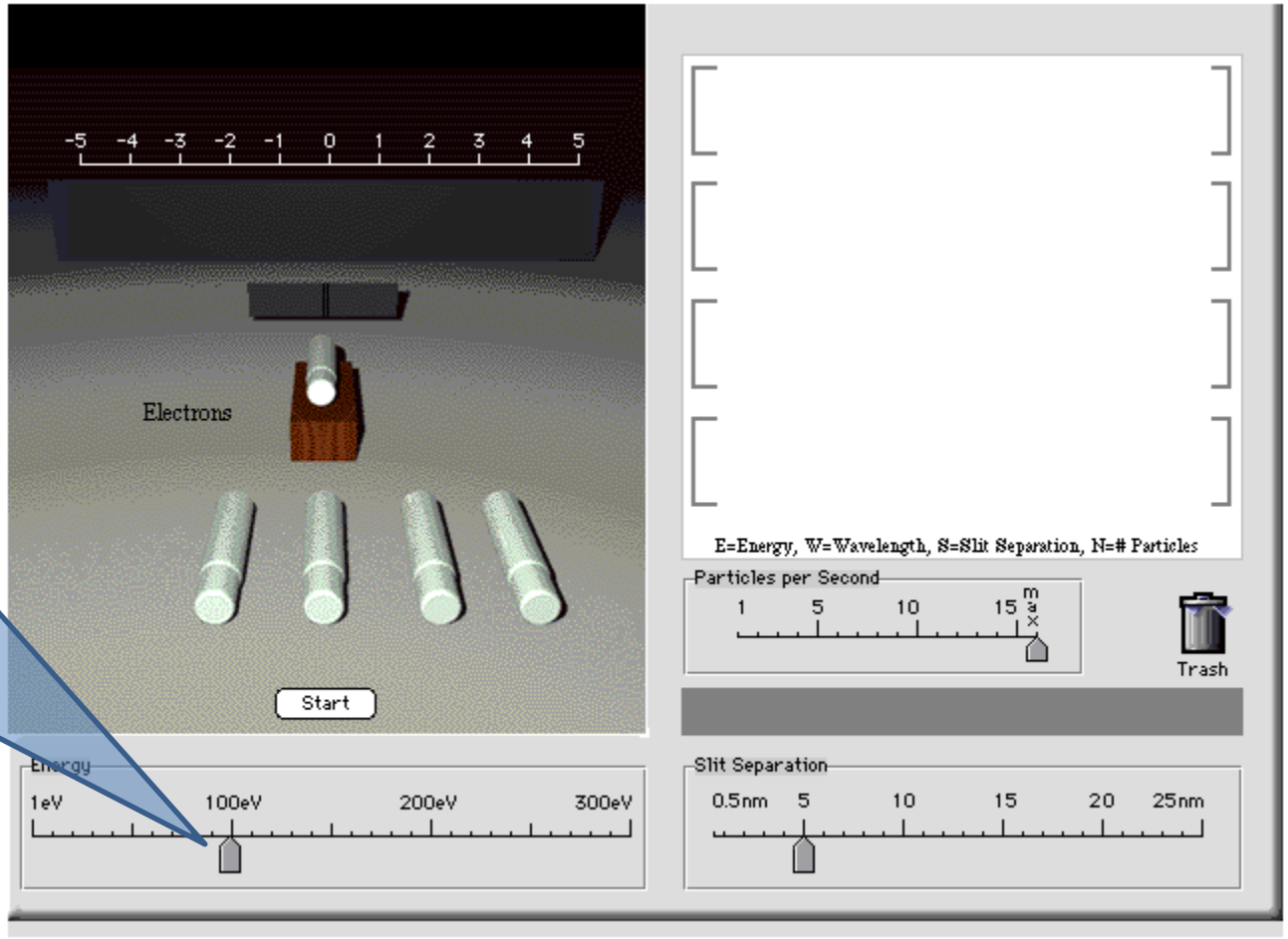
STEP 2: Changing the Energy/Wavelength of the Particles

Drag the slider to change the energy of the chosen particle. If your chosen particle is a photon, you will be presented with a slider that allows you to control the wavelength of the photon rather than its energy.



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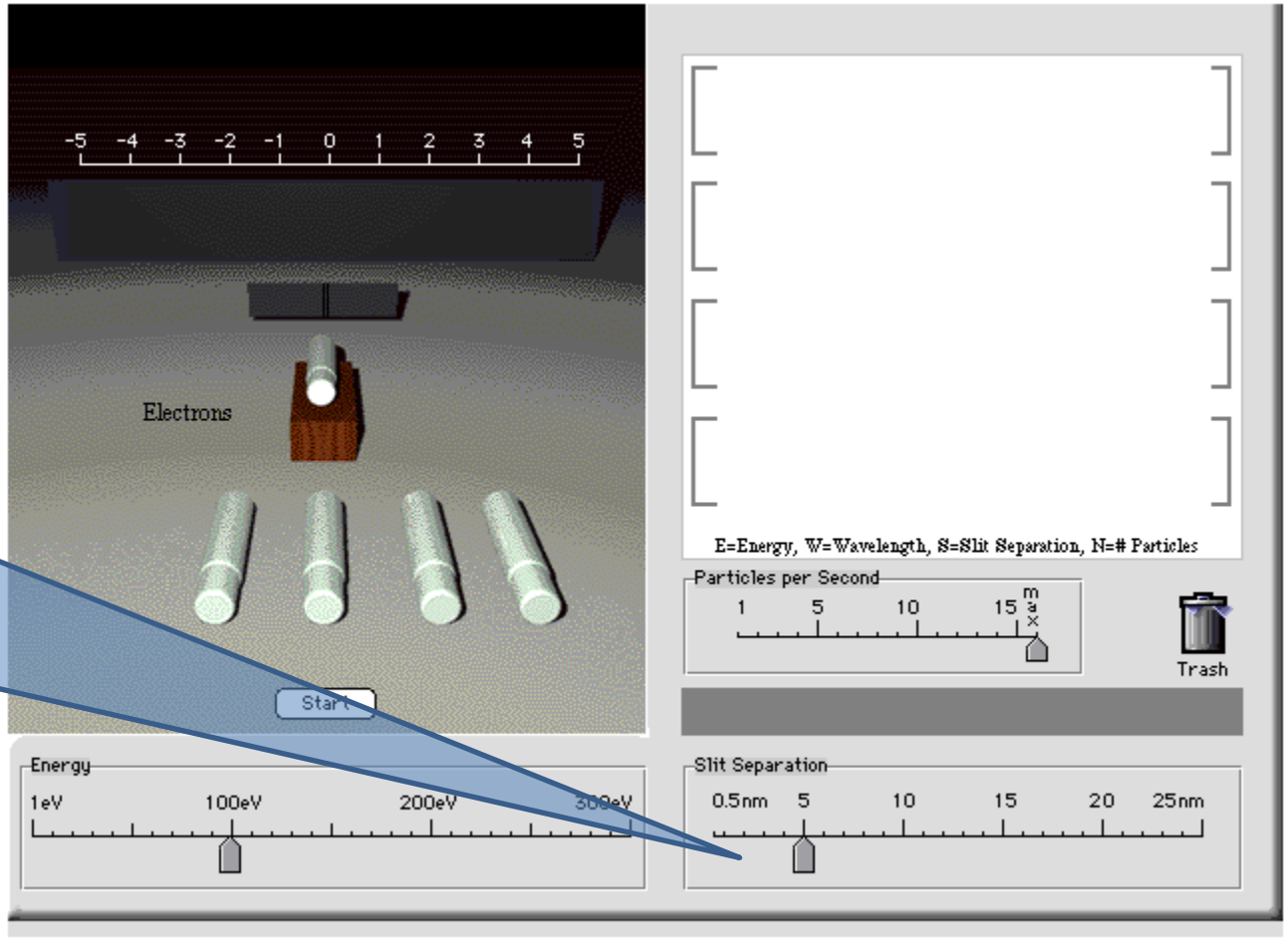
STEP 3: Changing the Slit Separation (if necessary)

Drag the slider at the bottom right of the screen to change the slit separation. You will see the slits come together or go apart in the experimental view, as you drag the slider.



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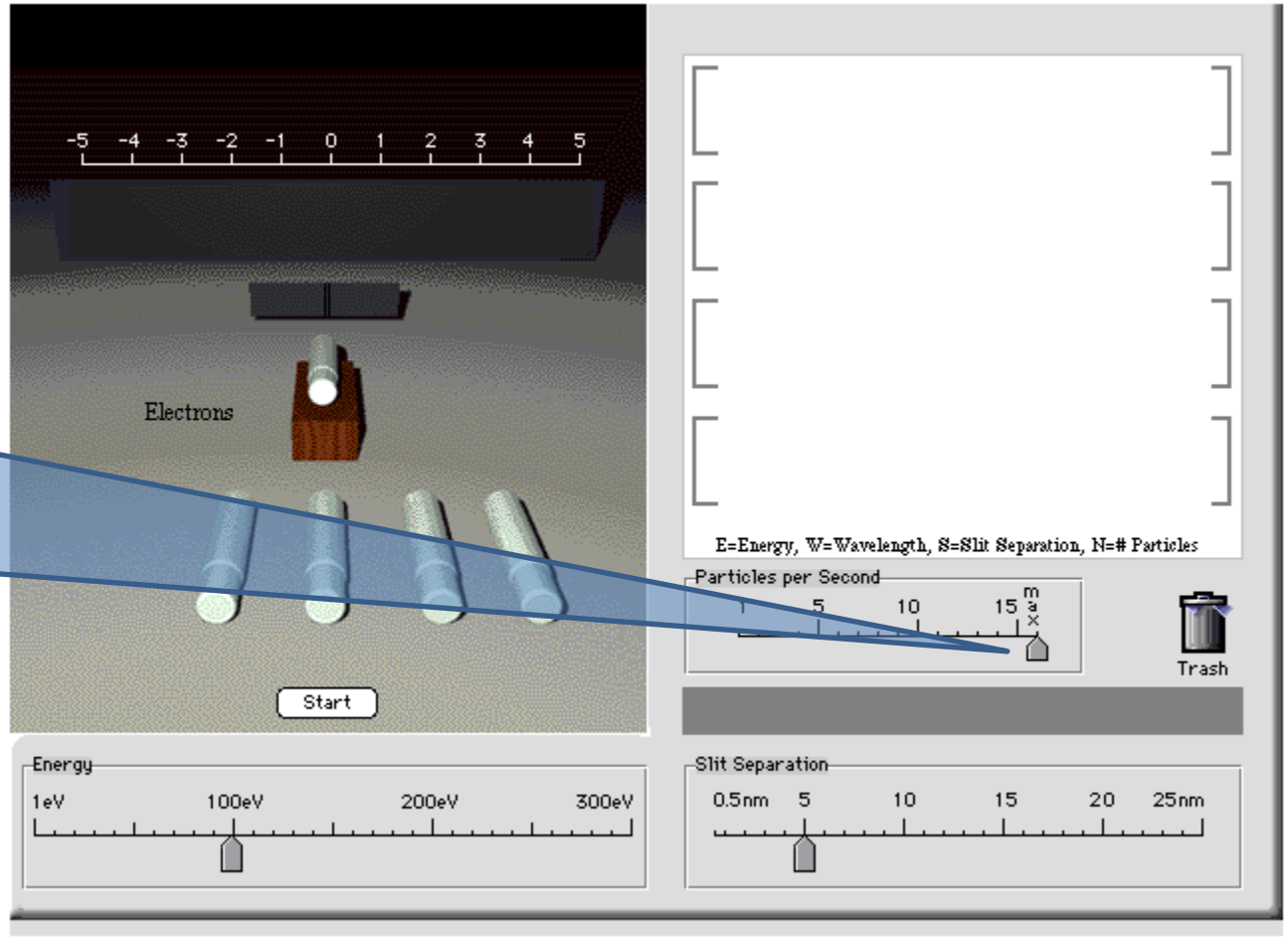
STEP 4: Changing the Particles Per Second (if necessary)

Control the rate at which particles are emitted by dragging the slider. You can decrease the particle rate to as low as 1 particle per second. .



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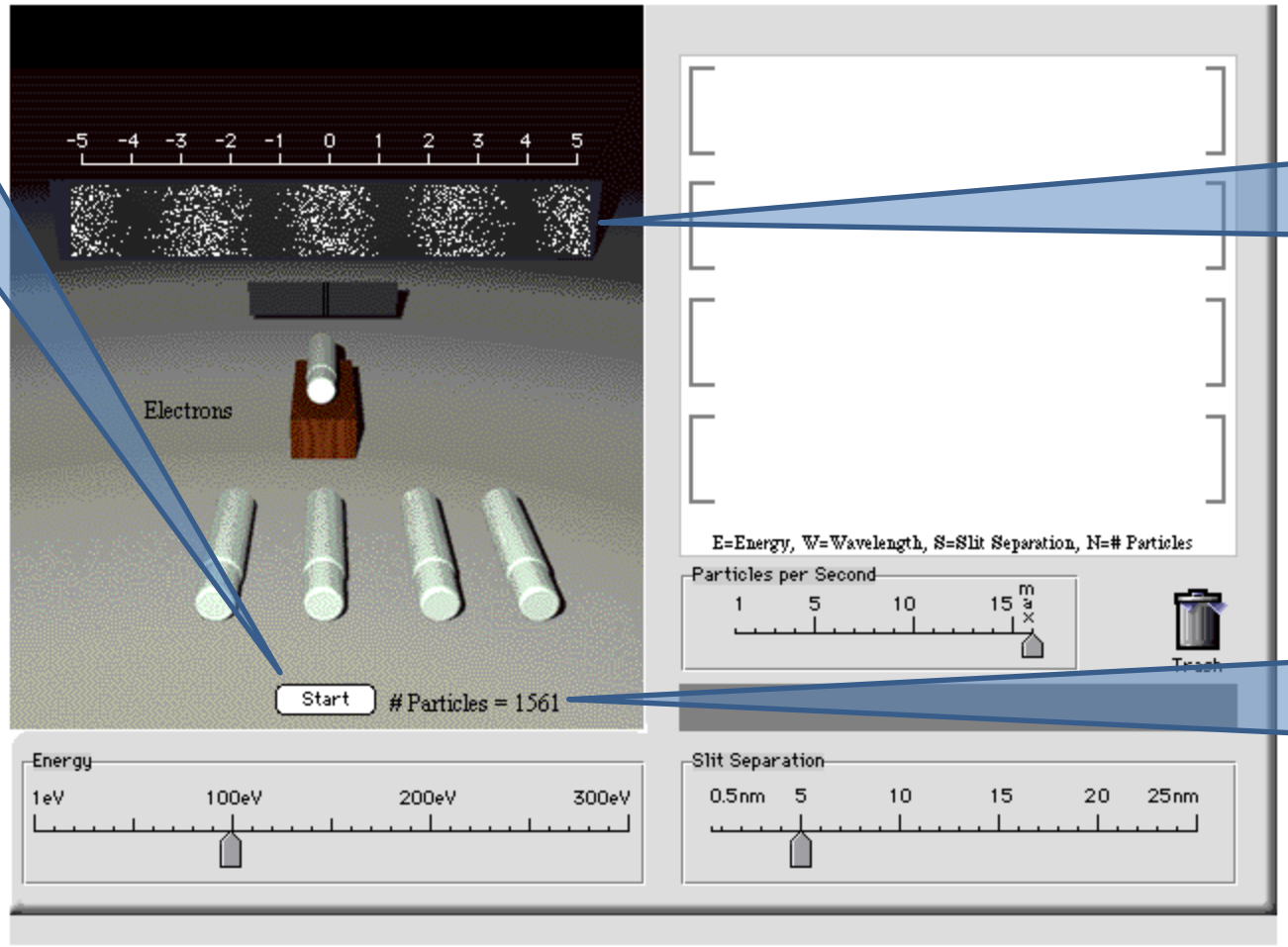
STEP 5: Observing the Pattern Develop

Click the "Start" button.. The "Start" button changes into the "Stop" button, that can be clicked at any time to stop the simulation.



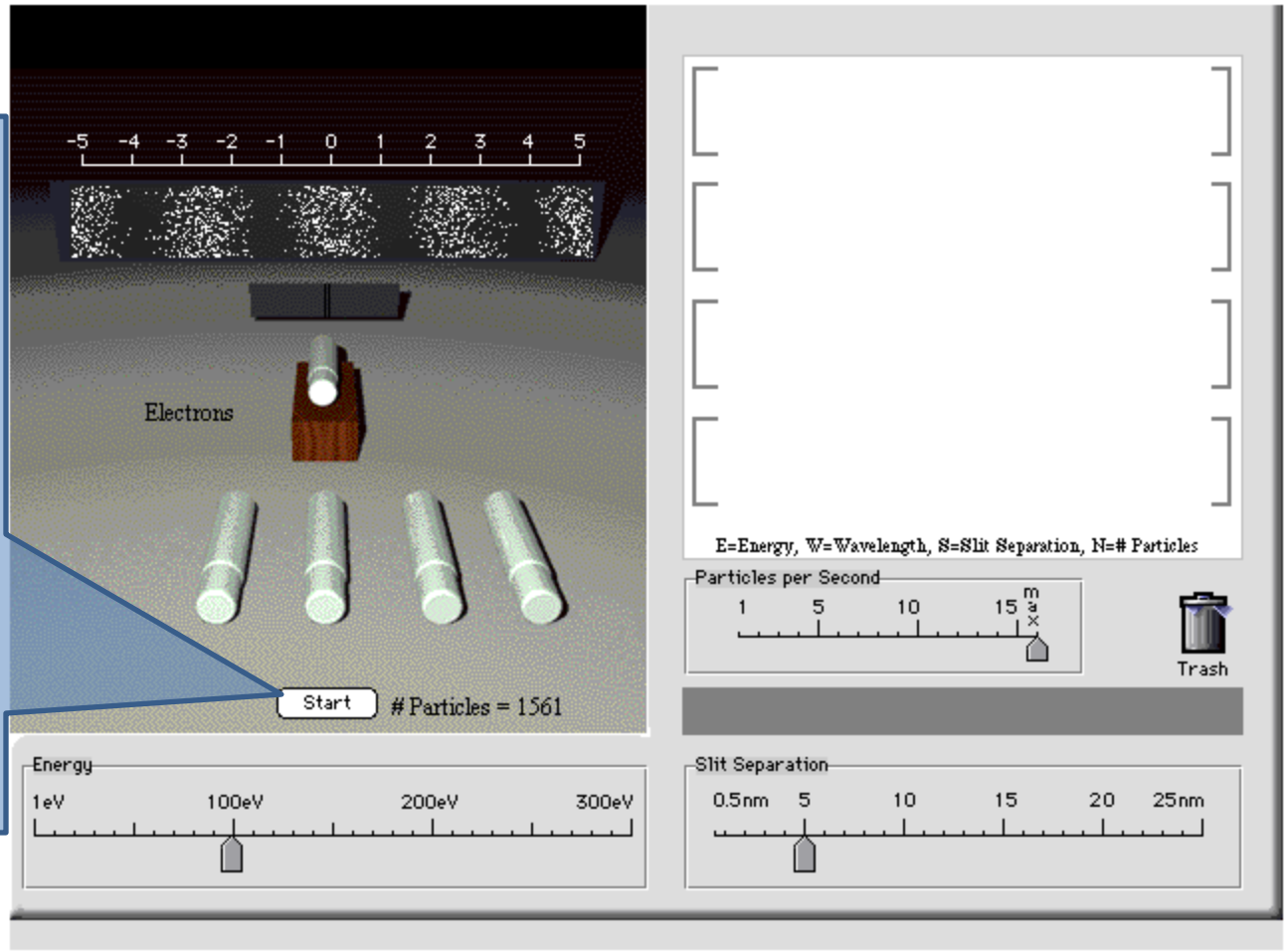
You will observe the diffraction pattern develop

A counter will tell you the total number of particles on the screen.

Next Step

Misbehaving stop button

The source sometimes does not stop for neutrons. If this happens, move the cursor to the interference pattern. When the cursor changes to a hand, click the mouse. Then the source will stop and you can save the pattern or start a new one.



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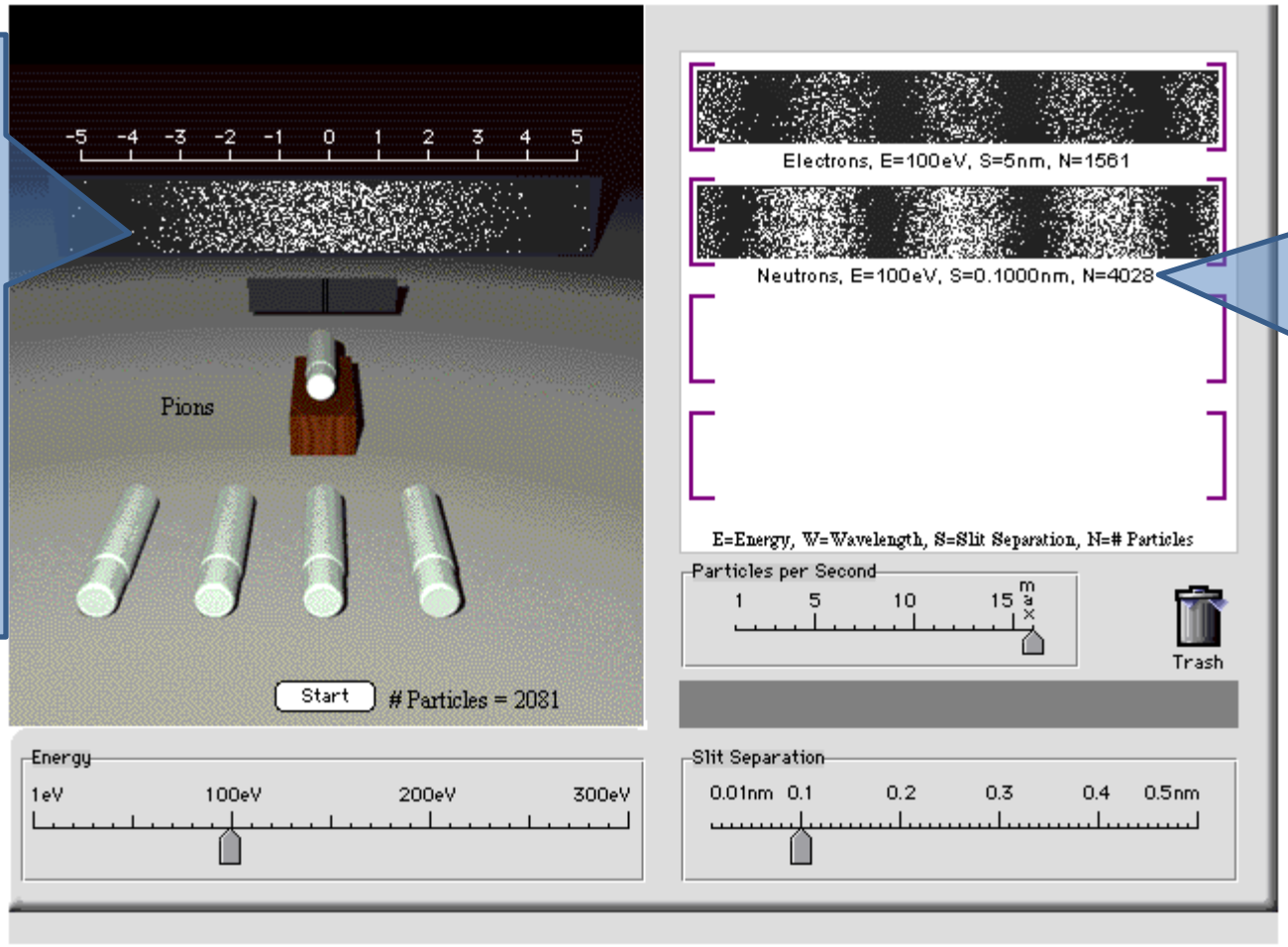
STEP 6: Comparing Diffraction Patterns

Once a diffraction pattern has been created it may be dragged (with the left mouse held down) to the right where it will be saved. Up to 4 diffraction patterns may be saved and compared at any one time.



The saved pattern will include information about the type of particle, energy or wavelength , slit width, and number of particles.