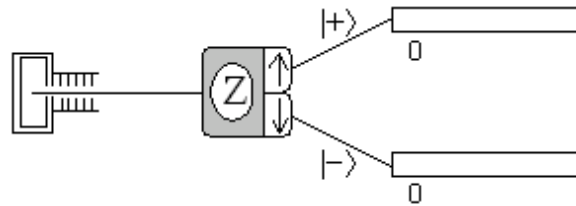


Probabilities of S.G. Device Measurements

Measure the spin projection S_z along the z-axis. This is the experiment that is ready to go when you start the program, as shown below. Each atom is measured to have spin up or spin down, denoted by the arrows and by the $|+\rangle$ and $|-\rangle$ symbols (we will explain the symbols in more detail later) in the figure below. The measured spin projections for these cases are $S_z = \pm\hbar/2$. Run the experiment by selecting Do 1 (ctrl-1) under the Control menu, which sends one atom through the apparatus. Do this repeatedly so you can see the inherent randomness in the measurement process. Try running the experiment continuously (Go) and



using the other fixed numbers (10, 100, 1000, 10000).