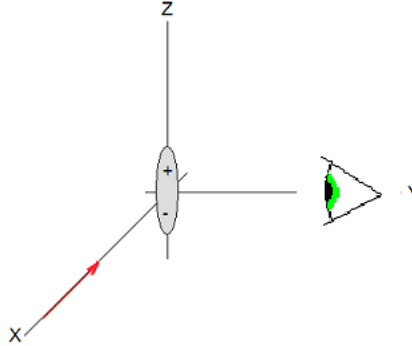


Optics

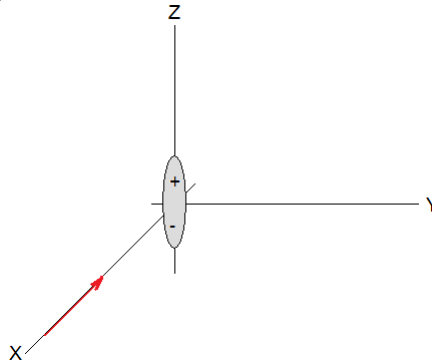
Scattering

Problem 1.- Consider a diatomic molecule with a dipole moment pointing in the positive z-direction and scattering linearly polarized light that travels in the negative x-direction with the electric field in the z-direction. If you observe the scattered photons from the positive y axis, in what direction is the polarization of the scattered light? Explain your reasoning.



Solution: The electric field will be in the z-direction, plane polarization. You can argue that the electric field of the incoming beam will shake the charges in the z-direction and the emitted photons will also have the electric field in the vertical direction.

Problem 1a.- Consider a diatomic molecule with a dipole moment pointing in the positive z-direction and scattering linearly polarized light that travels in the negative x-direction with the electric field in the z-direction. Indicate the direction of minimum probability for the scattered photons. Explain your reasoning.



Solution:

The minimum probability is in the **z-direction**.