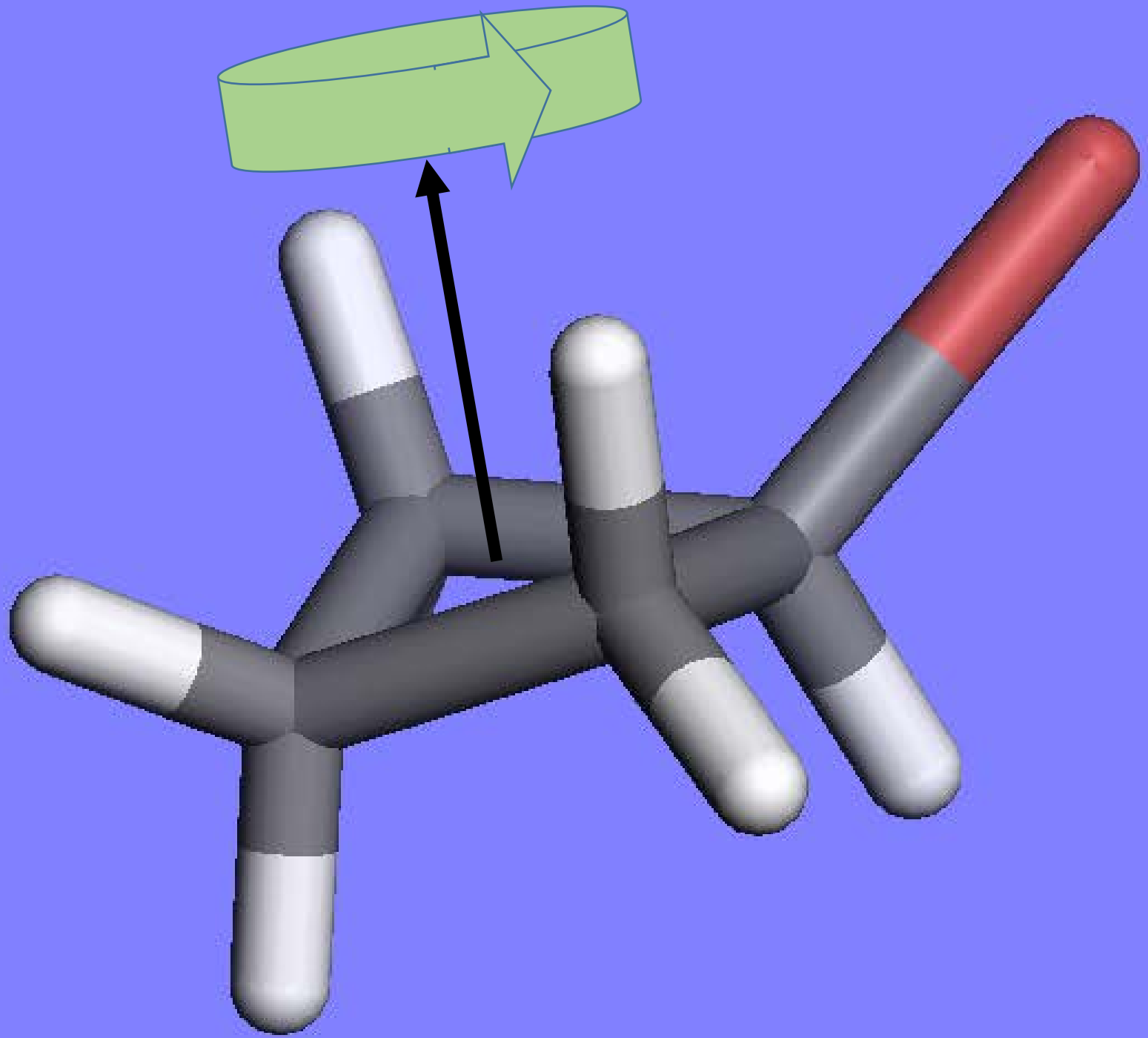

Rigid rotator problem

Calculate the transition dipole moment for a transition from J = 0 to J =1 for a rigid rotator with a permanent dipole moment of μ_0 = 1.5 Debye. Assume that the J = 1 wave function has M = 1 as well. You may assume that the incident light is circularly polarized. [Hint: This means that the ϕ-part for the polarization is either $e^{-\phi}$ or $e^{-i\phi}$]