1. Uniformly magnetized sphere with the radius $a$ and magnetization $\vec{M}$ rotates with the frequency $ω$ along the axis tilted by the angle $ϕ$ with respect to the magnetization vector. Calculate the intensity emitted by the system.

2. Derive the expression for the scattering cross section, i.e. ratio of the scattered power to the intensity of an incident plane wave with frequency *ω*, for an optically small object with electric polarizability *α*e.

3. Two electric dipole oscillators have the same frequency $ω$ but their phases differ by $π/2 $. The amplitudes of the dipole moments have the same magnitude $\vec{p}\_{0}$ and form the angle $ϕ$ with each other. The distance between the oscillators is much smaller than the wavelength. Find the angular distribution of the radiation from the system in the far zone.