

PHYSICS 200C, SPRING 2017
ELECTRICITY AND MAGNETISM

Assignment Five (part A), Due Friday, May 26, 5:00 pm.

[1.] Compute the scattering cross section from a small *dielectric* sphere (radius $a \ll \lambda$).

[2.] Compute the scattering cross section from a small, *highly conducting* sphere. Here you need to consider the fields due to both the induced electric and magnetic dipoles.

[3.] A Lorentz transformation from Frame S to Frame S' is described by the rapidity parameter θ where $\cosh \theta = \gamma = 1/\sqrt{1 - \beta^2}$ and $\beta = v/c$. A second, parallel, Lorentz transformation from Frame S' to Frame S'' is done along the same axis and is described by rapidity parameter θ' . How is the rapidity parameter θ'' for the Lorentz transformation from Frame S to Frame S'' related to θ and θ' ?