

Q.M. H.W. #9

Use this Def'n: $\frac{d\sigma}{d\Omega}(\theta) = |f(\theta)|^2$, $f(\theta) =$ Scattering Amplitude

Griffiths:

10.12

10.13 (a), (b), not (c)

Liboff:

14.6 Using the Born approximation, evaluate the differential scattering cross section for scattering of particles of mass m and incident energy E by the repulsive spherical well with potential

$$V(r) = \begin{cases} V_0, & 0 < r < a \\ 0, & r > a \end{cases}$$

Exhibit explicit E and θ dependence.

14.7 Using the Born approximation, obtain an integral expression for the total cross section for scattering of particles of mass m from the attractive Gaussian potential

$$V(r) = -V_0 \exp \left[-\left(\frac{r}{a} \right)^2 \right]$$