

Recitation #8 Quantum 522

1. Show that the propagator

$$G_+ = -\frac{1}{4\pi} \frac{e^{ikr}}{r}$$

satisfies the free particle Green's function equation. (Hint: recall Poisson's equation in electrostatics.)

2. Use the following figure to make a estimate based on classical scattering theory of the size of the gold atom ($Z=97, A=179$). Compare this to the formula $r = 1.2A^{1/3}\text{fm}$

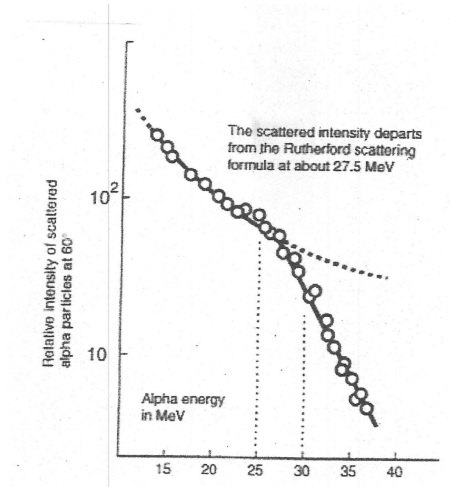


Figure 1: Observed Rutherford scattering deviates from theoretical prediction at 27.5 MeV