

(12.9) ^{12}C atoms are used to irradiate ^{239}Pu to produce an isotope of berkelium. What is the Coulomb barrier height?

Known data from the text:

$$A_1 := 12 \quad Z_1 := 6 \quad A_2 := 239 \quad Z_2 := 94$$

Calculations:

$$E_{cbmin} := 1.109 \cdot (A_1 + A_2) \cdot \frac{Z_1 \cdot Z_2}{A_2 \cdot \left(A_1^{\frac{1}{3}} + A_2^{\frac{1}{3}} \right)} \quad \text{Eqn. (12.14)}$$

$$E_{cbmin} = 77.3 \quad \text{MeV}$$