

- 1 The radius of a helium-4 atom is of the order  $10^{-10}$  m and its nucleus has a radius that is of the order of  $10^{-15}$  m.

If all the empty space in the helium atom is removed and the atom size is reduced to that of the nucleus, what is the approximate density of the matter that is formed?

- A  $10^{14}$  kg m<sup>-3</sup>
- B  $10^{18}$  kg m<sup>-3</sup>
- C  $10^{22}$  kg m<sup>-3</sup>
- D  $10^{26}$  kg m<sup>-3</sup>

- 2 A proton of the 1915 MeV beam is sent into the He-4 target. A proton and the first five lightest