

- 40 Nuclei of atoms can exist in excited states. When an excited nucleus returns to its state of lowest energy (the ground state), a γ -ray photon may be emitted.

The mass of a nucleus in its ground state is $59.9308\text{ }u$. The energy of the photon emitted when this nucleus returns from an excited state to the ground state is $2.13 \times 10^{-13}\text{ J}$.

What is the mass of the nucleus in the excited state?

- A $59.9280\text{ }u$
- B $59.9294\text{ }u$
- C $59.9322\text{ }u$
- D $59.9337\text{ }u$