Answer on Question #63664, Physics / Atomic and Nuclear Physics

Can a 1 kg of stone be converted in to energy according to $E=mc^2$?

Answer:

The formula $E=mc^2$ shows that matter and energy are interrelated, matter can be converted into energy and energy can be converted into mass.

$$E=mc^2$$

Where: E is Energy in Joules (J); m is mass in kilograms (kg); c is the speed of light in meters per second (ms-1) which is 3.0×10^8 ms^{-1}.

If a stone weighing 1 kg were completely converted into energy it would release so much energy:

$$E=1 \text{ kg} \times 9.0 \times 10^{16} \text{ } m^2 s^{-2} = 9.0 \times 10^{16} \text{ J} = 5.63 \text{ } 10^{35} \text{ eV}$$

If the stones could converted directly to energy, we could be faced with inexhaustible amounts of fuel.

However, it is practically impossible to implement.