Answer on Question 60341, Physics, Atomic and Nuclear Physics

Question:

Calculate the energy, in electron volts, of x-rays that have a frequency of

$1.0 \cdot 10^{19}\ Hz$.

Solution:

We can find the energy of x-rays from the formula:

$$E = hf,$$

here, $h = 4.135 \cdot 10^{-15}\ eV \cdot s$ is the Planck's constant, f is the frequency of the x-rays.

Then, we get:

$$E = hf = 4.135 \cdot 10^{-15}\ eV \cdot s \cdot 1.0 \cdot 10^{19}\ s^{-1} = 4.135 \cdot 10^{4}\ eV.$$

Answer:

$E = 4.135 \cdot 10^{4}\ eV$.