

Photons

We believe the energy in an e-m wave is carried by photons

Question: What are Photons?

Answer: Photons are Photons.

Photons possess both wave and particle properties

Particle:

Energy and Momentum localized

Wave:

They have definite frequency & wavelength ($f\lambda = c$)

Connections seen in equations:

$$E = hf$$

$$p = h/\lambda$$

Planck's constant

$$h = 6.63e^{-34} \text{ J} \cdot \text{s}$$

Question: How can something be both a particle and a wave?

Answer: It can't (when we observe it)

What we see depends on how we choose to measure it!

The mystery of quantum mechanics: More on this in PHYS 214