

**Experimental Results: Mass**

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For the electron, its mass is almost equal to its charge times its wavelength.

$$m_e \approx q_e x_e$$

$$m_e = 9.11 \times 10^{-31} \text{ kg}; \quad q_e = 1.6 \times 10^{-19} \text{ C}; \quad x_e = 2.4 \times 10^{-12} \text{ m}$$

So, we have put forward an hypothesis for a capacitor:

$$m = qd \quad \text{and} \quad q = CV$$

$$\text{Capacity -- } C = 100F \quad (\text{Ultra capacitor})$$

$$\text{Voltage -- } V = 2.5V; \quad d \approx 1 \times 10^{-5} \text{ m}$$

$$\Leftrightarrow m = 2.5g$$

We have done the experiment and found the value:

$$m = +4.0g$$

A charged capacitor increases its mass.

$$q = 250C; \quad \frac{q}{q_e} = n = 1.56 \times 10^{25}$$

$$nm_e = 1.4 \times 10^{-9} \text{ kg}$$

The mass isn't due to the electron's mass.

So, we have concluded that the mass is an electric dipole moment.