Charge to mass ratio (e m) of an electron

Science, Physics

Charge to Mass Ratio (e/m) of an Electron

Electron Charge to Mass Ratio This activity is conducted to better understand the effects of various parameters on the electron charge to mass ratio. Based on the tabulated results having six trials the measured radius increases as the voltage and current goes higher. The voltage used is from 150 V with maximum of 250V and current of 10. 7A to 15. 7A. Likewise, the electron charge to mass ratio also increases. Through the formula given, it can easily be seen that voltage is directly proportional to e/m. On the other hand, current is a parameter to get the magnetic value. This means that the electricity and magnetism directly affects the electron charge to mass ratio value. The uncertainty value was also estimated for the parameter values to for comparison purposes. The table shows that the uncertainty value for R decreases as the measured R increases. The average e/m value is also calculated which is 8. 9x10^7. There is a great disparity with this value with the theoretical value for the e/m. Possible errors can be due to the precision and accuracy of the measurements taken through the set-up such as the measuring of the radius, set-up of the voltmeter and amp-meter, and other possible causes.