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PHY350 Lab Report
Practical No: 2 Registration No.: 11912610 Section: G2903

Aim

To measure the charge to mass ratio of ...

Methods

We performed the experiment *in silico* using a virtual platform[1] (see Figure 1).

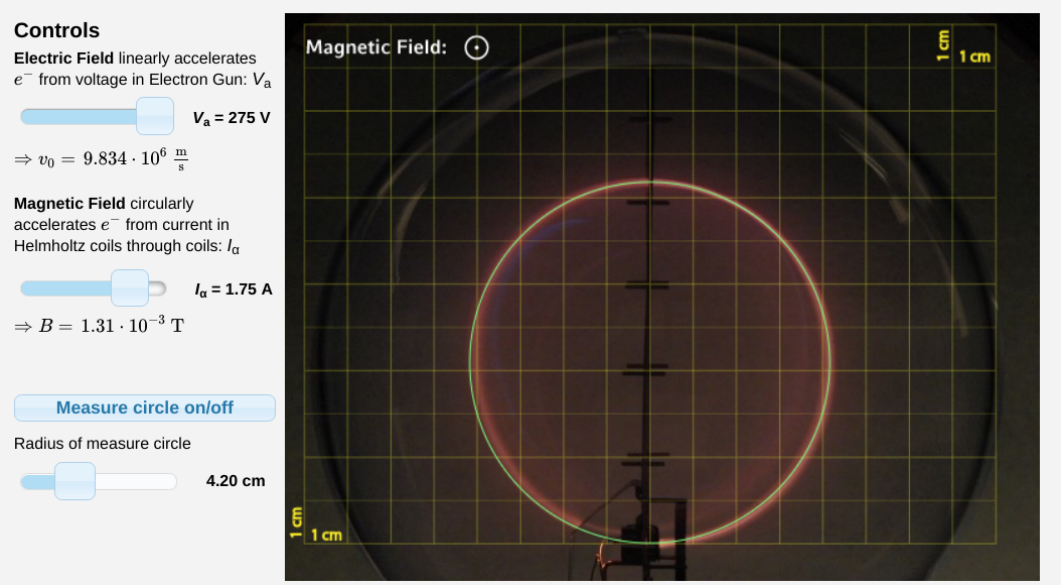

Figure 1: The virtual platform.

Results

The measurements done are summarized below.

The mean e/m was found to be 1.82×10^{11} C kg^{-1}. This is off the true value of 1.76×10^{11} by 3.64%.

[1] https://virtuelle-experimente.de/en/b-feld/e-m-bestimmung/edurchm.php

V_a in V	$\Rightarrow v_0$ in $\frac{\mathrm{m}}{\mathrm{s}}$	coil current I in A	$\Rightarrow B$ in T	Radius *r* in cm	$\frac{e}{m} = \frac{2 \cdot V_\mathrm{a}}{(B \cdot r)^2}$ in $\frac{\mathrm{C}}{\mathrm{kg}}$
125	$6.630 \cdot 10^6$	1.00	$7.48 \cdot 10^{-4}$	4.95	$1.82 \cdot 10^{11}$
200	$8.386 \cdot 10^6$	1.25	$9.35 \cdot 10^{-4}$	5.0	$1.83 \cdot 10^{11}$
225	$8.895 \cdot 10^6$	1.50	$1.12 \cdot 10^{-3}$	4.45	$1.81 \cdot 10^{11}$
250	$9.376 \cdot 10^6$	1.5	$1.12 \cdot 10^{-3}$	4.65	$1.84 \cdot 10^{11}$
275	$9.834 \cdot 10^6$	1.75	$1.31 \cdot 10^{-3}$	4.2	$1.82 \cdot 10^{11}$