ERROR ANALYSIS

TABLE 3
Error Analysis Table

V	dV	I	dI	[e/(T*(ln((I/Io) +1)))] dV	[-eV/(T* (Io+I) (ln (Io+I/Io))^2)] dI
(Volts)	(Volts)	(Amperes)	(Amperes)	(m^2 Kg s^-2 K^-1)	(m^2 Kg s^-2 K^-1)
0.25	0.01	4.30E-06	1.00E-07	1.26549E-24	-1.70E-25
0.3	0.01	1.52E-05	1.00E-07	9.79252E-25	-3.48E-26
0.35	0.01	4.00E-05	1.00E-07	8.33934E-25	-1.12E-26
0.4	0.01	1.80E-04	1.00E-05	6.77399E-25	-1.88E-25
0.45	0.01	4.80E-04	1.00E-05	6.03487E-25	-6.29E-26
0.5	0.01	1.70E-03	1.00E-05	5.2905E-25	-1.52E-26

Table 3 reveals that the contribution of voltage uncertainties, δV, to $\delta(k)$ is consistently higher that of current uncertainties, δI. Therefore, improving the uncertainty in measuring *V* is imperative. One choices is available, a higher precision voltmeter must be obtained. The uncertainties due to measurements taken with the microammeter are consistent with the degree of precision used.

The difference between our obtained value for *k* and the agreed upon value is likely due to a lack of strict theoretical derivation. The assumed ideality factor (*n*) of 1.5, may be the “missing” variable.

We have reviewed this document and fully support its content.
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