# Millikan Oil Drop Experiment Problem:

Question:

An oil drop, whose mass is found to be 4.95 x 10-15 kg is balanced between two large horizontal plates with the upper plate positive. The electric field strength between the plates is E = 5.10 x 104 N/C. What is the charge on the oil drop, both in coulombs and in elementary charges, and is it an excess or deficit in electrons?

Solution:

The charge on the oil droplet is

https://bblearn.merlin.mb.ca/bbcswebdav/xid-288846_1.

The number of elementary charges is

https://bblearn.merlin.mb.ca/bbcswebdav/xid-288847_1

The upper plate is positive, so for the electrical force to be up, the oil droplet must be negatively charged. Therefore, it must have gained 6 electrons. There is an excess of electrons.