

Millikan Experiment: Michelle Pichardo Munoz

Individual skills are scored based on the demonstrated level of proficiency:

Meets Expectations: 4 to 5

Needs Improvements: 2 to 3

Does not meet expectations: 0 to 1

Overall Comments

This is a very good report on a well-done experiment. Please see below for specific comments.

Introduction: Demonstrates knowledge of physics related to the experiment: 5

Excellent Introduction.

Methods: Demonstrates knowledge of experimental methods and analyses: 2.5

The experiment itself is very well explained. The analysis is clear, except for the final step of how the charge was obtained. I can see that you divided each charge by the known q_e , but what was done after that is not clearly described.

Results: Correctly conducts experiments and performs analyses. Presents the results clearly and completely, including uncertainties: 3

Results are clearly presented with one important exception: Figure 10 histogram has bins that are too wide. It is impossible to see if the charges cluster around integer values or not.

Error analysis: Correctly performs and explains error analyses: 5

Well done.

Discussion: Interprets results in context; uses correct statistical measures to compare quantitative results; explains discrepancies; provides suggestions: 3.5

Your 2-tailed p-value is 0.167. I'm not sure how you got 0.915. Since 0.167 is larger than 0.05, we cannot reject the null hypothesis with 95% confidence level, which is our predetermined threshold for this course.

Aside from this, there is no separate Discussion section. One needs to look for suggestions about improvements and implications of the results throughout multiple sections.

Data presentation: Presents data in clear manner consistent with the scientific conventions: 2.5

Everything is good, except for the absence of units in tables and figures and some variables not defined the first time they are used.

Uses appropriate references in a proper format to support statements: 3

Good work here. Needed improvements: each reference has to be cited in the appropriate place in the text; no numbering in the reference list.