# Lab 8

## Calculations

Compute the first excitation potential, *U*0, from the graph.

1. Choose one trace and read the horizontal coordinates of the crests. Put the voltages in the following table.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Crest | 1 | 2 | 3 | 4 | 5 | 6 |
| Voltages, *U* (V) | 21 | 30 | 41 | 53 | 66 | 78 |

1. Compute the difference of the voltages

U01=U2–U1=30V–21V=9V;

U02 =U3–U1=41V-21V=20V;

U03=U4–U1=53V-21V=32V;

U04=U5–U1=66V-21V=45V;

U05=U6–U1=78V-21V=57V;

1. Compute to the first excitation potential *U*0.

V

≈10.87V

1. The accepted value of the first excitation potential of argon is 11.6 V. Compute the relative error of you measurement.

The relative error was computed using the accepted value of 11.6 V for the first excitation potential of argon.

Formula: Relative Error= ​×100%

Substitution: Relative Error= ​×100%= ×100%

Result: Relative Error ≈ 6.3%