**OHM’S LAW AND FILAMENT LAMP**

WORKSHEET

**GOALS**

To confirm

* that through a filament lamp there is a flow of electrical current even though is not radiating
* that in a filament lamp Ohm’s law is not valid

**DISTANT ACTIVITY**

* Connect with the site: http:// e-science.web.auth.gr/circuits
* Click on the tab “Experiment” and connect with your own username and password (if you do not have you can sign in)
* Choose experiment 2 (Filament Lamp)
* Choose voltage between 0 up to 4,12volts and fill in the matrix I

Matrix I

|  |  |  |  |
| --- | --- | --- | --- |
| # | Voltage(Volt) | Electric Current (mA) | Ratio $(\frac{V}{I})$ |
| 1 | V1= | I1= | (V/I)1= |
| 2 | V2= | I2= | (V/I)2= |
| 3 | V3= | I3= | (V/I)3= |
| 4 | V4= | I4= | (V/I)4= |
| 5 | V5= | I5= | (V/I)5= |
| 6 | V6= | I6= | (V/I)6= |
| 7 | V7= | I7= | (V/I)7= |
| 8 | V8= | I8= | (V/I)8= |
| 9 | V9= | I9= | (V/I)9= |
| 10 | V10= | I10= | (V/I)10= |

**DATA ANALYSIS**

* For some voltage values lamp does not radiate. Do you believe that there is a flow of electrical current through the lamp even though it does not radiate?

α. YES b. NO

* From the ratio V/I that you have calculated could you say that lamp’s resistance (R) is constant?

α. YES b. NO

* Position the (V-I) couples from matrix I to the diagram below
* Draw the curve V-I



* What do you observe from the curve type? Is Ohm’s law valid?

α. YES b. NO

**THINK**

Internal resistance (R) of a filament lamp while it radiates is ………………………… (constant / not constant). This means that in a filament lamp Ohm’s Law is ………………………… (valid / not valid).

Furthermore, while the filament lamp is not radiating there ………………………… (is / is not) flow of electrical current.

**Help us to improve ourselves!**

**Answer to the questionnaire!**