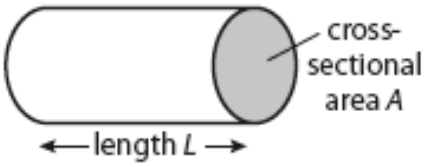
PHYSICS LABORATORY: Investigating Resistivities

BACKGROUND INFORMATION AND PURPOSE

Besides temperature, there are three factors affecting the resistance of a conducting wire:

1. The type of material
2. The length
3. The cross-sectional area



Source: Physics for the IB Diploma, Hamper

You know that the relationship between these variables is given by

$$R \propto \frac{L}{A} = \rho \frac{L}{A}$$

where ρ = 'resistivity' of the material.

In this lab you will verify the relationship between these experimentally and come up with an experimental value for the resistivity of nichrome.

DATA COLLECTION AND PROCESSING (DCP)

- ✓ Choose a gauge of nichrome wire and determine the resistivities of different lengths of that wire.
- ✓ Using appropriate graphing techniques, determine the resistivity of nichrome experimentally.
- ✓ Remember you need at least 5-6 data points, and 3 trials for each data point, with full treatment of errors and uncertainties.

CONCLUSION AND EVALUATION (CE)

- ✓ Compare your experimental resistivity to the given values.

Remember:

1. **Refer to the 'Physics Lab Report Guide' before submitting your report.**
2. **Attach the 'Physics Lab Report Rubric' as a cover page to your paper copy.**

You will be marked on Data Collection and Processing (DCP) and Conclusion and Evaluation (CE) for this lab.