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## Experiment - 2

1) Explain any one of application based on this experiment. (Related to your core branch)

Ans. 1) Energy band gap has played an important role in growth of computer science. It helps to choose the right material to be used to make the device.
2) Suppose to make the microprocessor for a computer we require some characteristic properties such as low thermal conductivity, high electrical conductivity, low attenuation, etc. So this way we can bring the most out of the processor.
3) It also plays a significant role in making of microprocessor by using semiconductor in it. Using right material for expected outcome and gaining most out of the least has enabled an inevitable growth in the field of Computer Science.

2) Explain any other techinque or experiment other than the one performed which will achieve the result and fulfill the aim of experiment.

Ans 1) The techinique which can be used to find energy band gap is ultravoilet - visible spectrometer.

2) Band gap of semiconductors materials is found by plotting graph between $(\alpha h\nu)^{1/n}$ vs $(h\nu)$

where, 1) $\alpha$ = optical absorption coefficient

$$\alpha = 2.303 \frac{A}{t} \quad \cdots \alpha = \text{absorbance}$$

$t$ = thickness of sample

2) $h\nu$ = photon energy

$$h\nu = \frac{12400}{\text{wavelength (in } \text{Å})}$$

3) Power factor $n$ takes values of 0.5, 1.5, 2, 3 for allowed direct, indirect, forbidden direct and indirect respectively.

3) Extra Plotting the straight line portion of the curves to zero absorption coefficient value gives the energy band gap value.