


Subject: Physics

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Paper No. : Solid State Physics

Module : Heat Capacity of Solids-II



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Description of Module	
Subject Name	Physics
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Experimental Measurements

The specific heat as a function of temperature is measured over a wide range of temperatures.

Experimentalists often use the Debye model to fit their data. They take the Debye temperature or an adjustable parameter to be determined by fitting their data to the equation for C_v (4.16).

Thus one needs to take $\theta_D = \theta_D(T)$ from a plot of θ_D as a function of temperature for that value of T to fit the data to the Debye model.

At very low and very high temperatures, theory matches with experiment well. At intermediate temperatures, the disagreement between theory and experiment is about 10%. The reason for this disagreement is the Von Hove Singularities which are not taken into account in the Debye model.

References

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