

Electrical conductivity and Knight shift of some non-trivalent metals at molten state

R. R. THAPA

Department of Mathematics, Tribhuvan University, Post-Graduate Campus, Biratnagar,
Nepal

Received : 1.6.2015 ; Accepted : 1.7.2015

Abstract. Electrical conductivity is one of the important physical properties of a metal. It is a matter of interest to study the electrical conductivity of a metal at its molten state. In the present theoretical work we have considered the monovalent liquid metals sodium and potassium and bivalent ones magnesium and zinc near the melting point and used Harrison's first principal pseudopotential technique which is basically an orthogonalised plane wave method. A study of the existing literature reveals that the work with the magnetic property like Knight shift of metals is scarce. This has encouraged us to apply the said HFP technique to study the Knight shift of the present metals. Our results for electrical conductivity corroborate well the observed values. For Knight shift also the computed values are in reasonable agreement with the experimental results.

Keywords. Liquid metal, Electrical conductivity, Knight shift, Pseudopotential.

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