Localized Impurity States in Liquid Metals: Dilute Alloys of Nickel in Liquid Bismuth*

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Abstract

The experimental study of residual resistivity and magnetic susceptibility of dilute alloys of nickel in liquid bismuth is presented. The increase in resistivity by the addition of one atomic percent nickel amounts to $0.45 \mu \Omega \text{ cm}$. The localized electrons of nickel are non-magnetic in liquid bismuth and the increase in the susceptibility by $d$-state of additional one percent nickel is $0.2 \times 10^{-6}$ C.G.S.e.m.u.

It is concluded that the density of the virtual bound state of nickel in liquid bismuth is not so large compared with that of the conduction electron.

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