THE RESISTIVITY AND HALL EFFECT OF THE AMORPHOUS $\mathbf{Co_xNi_{70-x}Fe_5Si_{15}B_{10}}$ RIBBONS

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9.7 cm

The influence of structural disorder and magnetism on the resistivity of the amorphous $Co_xNi_{70-x}Fe_5Si_{15}B_{10}$ ribbons has been investigated. The resistivity vs. composition dependence shows parabolic-like behaviour. Low temperature logarithmic behaviour and resistivity minima are found. The temperatures of the minima vary as a function of the composition in similar way as the Curie temperatures do. The resistivity is proportional to $T^{3/2}$ and T^2 at temperatures $T < 0.5\,T_c$, depending on the cobalt content. Both dependencies are considered to be of magnetic origin. Above $T \geq 0.5\,T_c$ resistivity increases linear by with increasing temperature which is seemingly due to electron-phonon scattering. Obviously, the chemical and positional disorder is responsible for the major part of conductivity.

13.4 cm

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