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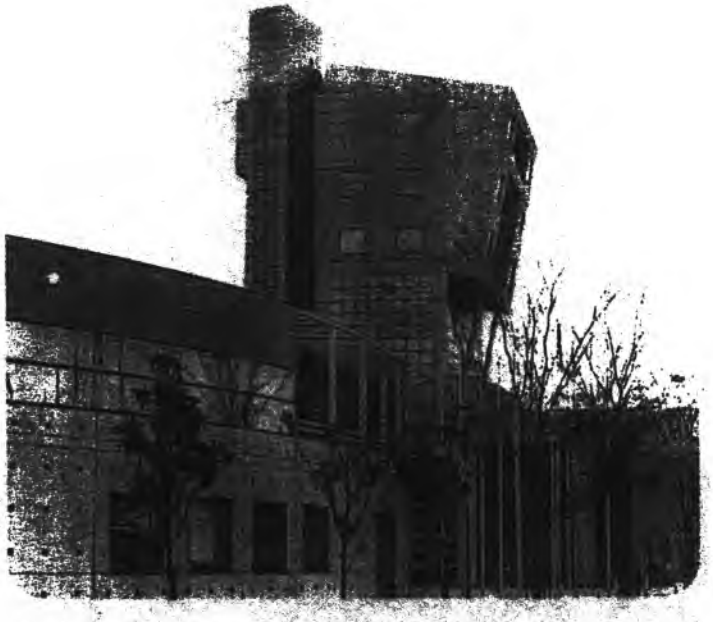

MAGNETIC FIELD OF CYCLIC CURRENT IN CYLINDER CONDUCTORS

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Having studied the radial current flow in aluminum and copper conductors being undergone to the action of transverse magnetic field we have met a problem of determination of the magnetic field distribution through the volume being inhomogeneous medium if interaction between external magnetic field and self field due to hall drift takes place. For the conductors limited geometrically there are self field components which have been measured and analysed on the base of total presentations of electromagnetodynamics and material boundary conditions. Two limit cases of long sample, its height being much greater of average radius, and short one, the height being small, have been estimated. For long conductor a magnetic self interaction leads to the power law of field dependence on radius, the power being a function of current, material purity and sample heigh. For short conductor the radial dependence of axial component is a modified logarithmic function depending on inner and outer radia of conductor, the azimuthal integration having been made with a help of complex variable function. The correlation of the calculated data for the limit of short conductor with experimental data having been obtained for the face of disk shaped sample is discussed regarding the peculiarities of electron relaxation processes both isotropic and anisotropic nature. The peculiarities of dispersion law of these metals are being taken into account for single crystal and polycrystalline samples. The behaviour of conductors in these conditions is discussed in terms of high magnetoresistance for polycrystals being a result of conductivity tensor averaging at existence of narrow layers of elongated electron orbits.

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