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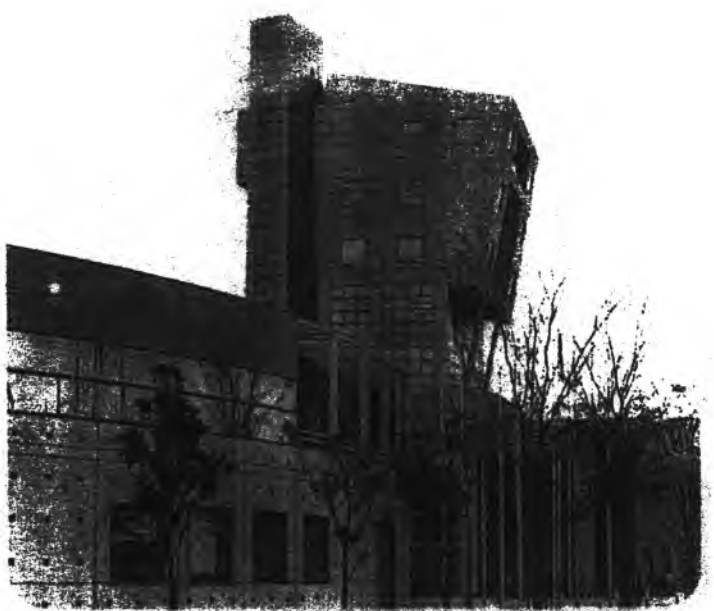

MAGNETISM DUE TO HALL CURRENT IN ALUMINUM AND COPPER CONDUCTORS

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Aluminum and copper being widely used materials for cryogenic engineering both separately and as joint conductors are very attractive objects for further search of their application through the modelling of new regimes of its operation. The such obstacle as an opposite signs of hall coefficients of these materials taking place in superconductive cable stabilizers may be inverted into positive moment for the case of charge transport in conditions of hall drift in cylindrical conductors when current is made to flow between inner and outer concentric contacts. Having investigated an electron magnetism in these conductors we are representing the self magnetic field energy density, its distribution, dependence on external field and current. Joint conductor consisted of aluminum and copper disks has been investigated too. Its ingredients were isolated each from other throughout besides of the inner current contacts where the electric contact between aluminum and copper components is made and radial current from one disk transfers into other. The advantage of such current flow arrangement is that the supply of system is realized with only outer current leads. The exclusion of inner current lead permits to decrease the heat generation in centre of system as the most critical region and to enlarge the magnitude of field. For this type of connection the opposite radial currents in aluminum and copper components are undergone to the hall drift in the same direction and both self magnetic fields are parallel and enhance each other. Such way gives possibility to increase magnetic energy density because the current distribution for radial current through the cross section will be more efficient in the sence of allocation uniformity compare with a single disk of the same thickness.

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