irradiation doping effects on the properties of alumina

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- aluminum oxide has been prepared using Aluminum strips of 1 % impureties. Discs -of 1.3 Ca diameter and 0.2 Cm thickness were subjected to de elentrical con ductivity measurments It is found that alumina behaves like metals at low temperature and as an insulator at high temperature having an activation energy on 0.444 ay.The electrical conductivity of irradiated sampleswith different gamma doses increase with increasing the exposure dose at low temperature and it had no obvious change in high temperature.The imprignation technique is used for doping of alumina with Lithium, Iron and Titanium and it is found that doping with Li increase the electrical conductivity while in caseof Fe and Ti the conductivity decreased, at high temperature, as the dopant increases.I-V characterisitic curves for virgin ,irradiated and Li-doped -alumina samples showed the three regions, ohmic, space charge and trap filled from which the values of the mobility, number of carries and the trap density were calculated.Also the isothermal annealing study for virgintirradiated and Li-doped samples were studied.