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Charge carrier mobility investigation in p-type Si after 6MeV electron irradiation

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Abstract: The radiation induced defects in silicon changes charge carrier transport properties, which are investigated by Hall and magnetoresistivity measurement techniques. The study concentrates on p-type Si material showing recent interest in BiOi defect formation. The irradiation of 6MeV energy electron fluence covers range from $1E+16$ to $5E+16$ /cm². The analysis enables to extract free carrier thermal activation energy, the density of impurities and relate them to the irradiation fluence. The results are supplemented with the ones from thermal annealing.

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