



Improvement of InP crystalline perfection by He⁺-implantation and subsequent annealing

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[https://doi.org/10.1016/0038-1098\(95\)00452-1](https://doi.org/10.1016/0038-1098(95)00452-1)

Abstract

The influence has been studied of 100-keV He⁺-ion implantation and subsequent thermal annealing on Raman scattering spectra of LEC-grown InP single crystals with (100)- and (111)-crystallographic orientations of the surface. Improvement of InP crystalline perfection was observed after He⁺-implantation at the dose $1 \times 10^{15} \text{cm}^{-2}$ followed by sample annealing at 600–700°C. Implant-induced removal of thermally stable defect clusters related with the growth process is supposed to be primarily responsible for the phenomenon involved.