Atomic Diffusion Mechanism in BF2+ Implanted and Annealed n-Fz Si junction using Analytical Approach: Comparison with 2-D TCAD Process Simulation Result

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**Abstract**. Ion implantation controls the diffusion of the dopants inside the n-Fz Si bulk of the p+n Si microstrip detector. In order to understand about the diffusion of BF2+ molecules/dopants in the n-Fz Si bulk of DSSSD (front side) (Double Sided Silicon Strip Detector) for the R3B Silicon Tracker, it is essential to know the precise information of the microscopic defect inside the Si lattice of the detector for the next phase upgrade of the R3B experiment. The purpose of this paper is to present the atomic transportation and electrical activation behaviour of BF2+ molecules/dopants implanted, n-Fz DSSSD for the R3B Silicon Tracker at an energy of 80 KeV and a dose of 1015 ion/cm2 after annealing at 400-1350 0C.

The result shows the amorphous-crystalline interface position and recrystallization temperature using the results revealed from the 2-D TCAD process simulation of the Si microstrip detector.

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