



## Fluorine enriched silicon: properties and advantages

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LAP Lambert Acad. Publ. Nov 2010, 2010. Taschenbuch. Book Condition: Neu. 220x150x7 mm. This item is printed on demand - Print on Demand Neuware - Si-based microelectronic community is experiencing a sort of revolution, in order to meet the scaling rate demanded by high-tech industries. Shallow p-type junctions with high active dopant concentrations are needed. The F capability in helping the B confinement in Si is widely recognized, even if there is not a general consensus on the physical mechanisms acting. Different mechanisms have been proposed: a chemical bonding between F and B; or a F interaction with point defects, through the formation of F-I (interstitial) or F-V (vacancy) complexes. This thesis investigates the F behaviour in pre-amorphized Si, opening a new route towards the F profile engineering. F is shown to strongly modify Is and Vs population, inducing an Is undersaturation or a Vs supersaturation. Such effect is transient, because strictly correlated to the transient presence of F in the Si samples. Our results allow a point defect engineering by means of F, ruling out the F-B chemical bonding as the responsible for B diffusion reduction by F, and suggesting the F-V bonding as the key mechanism governing the...



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