



Contribution ID: 61

Type: Poster

P87 - Monitoring of the vacancy recombination rates and defect formation processes in Si and diamond during the irradiation by MeV energy ions

Friday, 11 July 2014 13:00 (1 hour)

Ion microprobe technique IBIC (Ion Beam Induced Charge) is established method for microscopic monitoring of the charge collection properties in semiconductor materials and devices. Here we applied IBIC to observe kinematics of defect creation processes in semiconductors. For this purpose silicon and diamond radiation detectors have been irradiated by MeV ion microbeam (Si, O, C) using different ion fluencies and wide range of ion rates. Observed changes in IBIC responses, indicate that simultaneous irradiation of material and on-line IBIC monitoring can be used to study the kinematics of defect creation processes. These were further studied by the new dual beam irradiation setup at RBI. This setup enables alternated irradiation by a damaging beam from the 6.0 MV tandem accelerator and by a probing beam from the 1.0 MV tandem accelerator. Results will be presented and discussed.

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Session Classification: Poster Session with Cheese and Wine