Contribution ID: **0** Type: **not specified**

Operational conditions for enhancement of collected charge via avalanche multiplication in n-on-p strip detectors

Thursday 31 May 2012 10:00 (20 minutes)

Recent results on the collected charge Qc in heavily irradiated Si detectors developed by RD50 collaboration for SuperLHC revealed a significant Qc enhancement if detectors were operated at the bias voltage beyond 1000 V. Our investigations showed that this enhancement arises from a fundamental effect of carrier avalanche multiplication in high electric field of n+-p junction. This study extends the PTI model and gives the results on the detector bias voltage and the other operational conditions as well as detector geometry which lead to Qc enhancement. Simulations predict that the maximum Qc in irradiated detectors may be larger than in a non-irradiated detector that agrees with the experimental data.

Author: Dr VERBITSKAYA, Elena (Ioffe Physical-Technical Institute RAS)

Co-authors: Prof. ZABRODSKII, Andrei (Ioffe Physical-Technical Institute RAS); Dr EREMIN, Vladimir (Ioffe Physical-Technical Institute RAS)

Presenter: Dr VERBITSKAYA, Elena (Ioffe Physical-Technical Institute RAS)

Session Classification: Detector Characterization and Simulations

Track Classification: Detector Characterization