

SOI Monolithic pixel detector technology

Thursday 29 September 2016 09:30 (22 minutes)

Silicon-On-Insulator (SOI) is very fascinating technology which can be used to fabricate monolithic radiation detectors. Although there were several difficult issues to solve such as back-gate effect, sensor-circuit coupling, and radiation hardness etc., we could solve these issues by introducing buried wells, double-SOI wafer and higher dose LDD region.

We also introduced active merge technique in which NMOS and PMOS transistors are merged and share active layer and contacts. This reduced layout size less than 50% of previous design.

I will present newly developed technologies and recent developments of integration-type and counting-type detectors.

Author: Prof. ARAI, Yasuo (High Energy Accelerator Research Organization (JP))

Presenter: Prof. ARAI, Yasuo (High Energy Accelerator Research Organization (JP))

Session Classification: B11-New developments and detector R&D

Track Classification: New developments and detector R&D