Contribution ID: **14**   Type: **Poster**

TCAD Simulation of Stitching for Passive CMOS Strip Detectors

Monday 1 July 2024 17:43 (1 minute)

Most of the tracking detectors for high energy particle experiments are covered by silicon detectors since they are radiation hard, they can give very small spatial resolution and they can take advantage of the silicon electronics foundries'developments and production lines.

Big area strip detectors are very useful to cover large areas for tracking purposes. The majority of particle physics experiments use conventional silicon strip detectors fabricated in foundries that do not use stitching, relying on a very small number of foundries worldwide that can provide large area detectors. For this production we fabricated strip detectors in a CMOS foundry using two $1cm^2$ reticles stitched three and five times, showing that the stitching of two reticles does not affect the performance of the strip detectors.

For this presentation, we will show an overview of the results of passive CMOS strip detectors fabricated for this project and an in-depth TCAD simulation of the possible impacts the stitching can have on the performance of the strips.

Author: BASELGA, Marta (Technische Universitaet Dortmund (DE))

Co-authors: SARI, Birkan (Technische Universitaet Dortmund (DE)); SPERLICH, Dennis (Albert Ludwigs Universitaet Freiburg (DE)); HUEGGING, Fabian (University of Bonn (DE)); LEX, Fabian Simon (Albert Ludwigs Universitaet Freiburg (DE)); GREGOR, Ingrid-Maria (DESY & Bonn University); ZATOCILOVA, Iveta (Albert Ludwigs Universitaet Freiburg (DE)); ARLING, Jan-Hendrik (Deutsches Elektronen-Synchrotron (DE)); WEIN-GARTEN, Jens (Technische Universitaet Dortmund (DE)); DINGFELDER, Jochen Christian (University of Bonn (DE)); JAKOBS, Karl (Albert Ludwigs Universitaet Freiburg (DE)); KROENINGER, Kevin Alexander (Technische Universitaet Dortmund (DE)); HAUSER, Marc (Albert Ludwigs Universitaet Freiburg (DE)); KARAGOUNIS, Michael (Fachhochschule Dortmund Univ. of Applied Sciences and Arts (DE)); DAVIS, Naomi Afiriyie (Deutsches Elektronen-Synchrotron (DE)); KOPPENHÖFER, Roland (Albert Ludwigs Universitaet Freiburg (DE)); SPAN-NAGEL, Simon (Deutsches Elektronen-Synchrotron (DE)); PARZEFALL, Ulrich (Albert Ludwigs Universitaet Freiburg (DE))

Presenter: BASELGA, Marta (Technische Universitaet Dortmund (DE))

Session Classification: Poster Session