Contribution ID: **19** Type: **Poster**

A program for fast calculation of capacitances, in planar pixel and strip silicon sensors

We present a program for fast calculation of capacitances in planar silicon pixel (strip) sensors, based on a 3D (2D) numerical solution of the Laplace equation. A comparison between calculated capacitances and measurements on pixel and strip sensors, along with simulation results obtained with the TCAD Sentaurus suite are presented. The agreement between calculations and measurements better than ~20%, while CPU time for a typical 2 GHz, 4 Core processor is below 5 min for pixel and below 1 min for strip calculations. In addition, our work includes calculations for various configurations of pixel and strip geometries associated with HL-LHC experiments. The program is a useful tool for fast estimation of interstrip, interpixel and backplane capacitances before an embarkation to more sophisticated programs is launched.

Primary authors: ASSIOURAS, Panagiotis (National Center for Scientific Research Demokritos, Institute of Nuclear and Particle Physics, Agia Paraskevi, Greece); ASENOV, Patrick (National Center for Scientific Research Demokritos, Institute of Nuclear and Particle Physics, Agia Paraskevi, Greece); KAZAS, Ioannis (National Center for Scientific Research Demokritos, Institute of Nuclear and Particle Physics, Agia Paraskevi, Greece); KYRIAKIS, Aristoteles (National Center for Scientific Research Demokritos, Institute of Nuclear and Particle Physics, Agia Paraskevi, Greece); LOUKAS, Dimitrios (National Center for Scientific Research Demokritos, Institute of Nuclear and Particle Physics, Agia Paraskevi, Greece)

Presenter: ASSIOURAS, Panagiotis (National Center for Scientific Research Demokritos, Institute of Nuclear and Particle Physics, Agia Paraskevi, Greece)