

Python based detector simulation software - RASER

Thursday 12 October 2023 15:00 (10 minutes)

We developed a fast simulation software for semi-conductor detector in python - RASER (RAdition SEmi-conductoR). RASER aims to estimate both spatial and timing resolution for semiconductor (silicon and SiC for now) detectors, providing predicts for detector design. It works relied on Geant4 and DEVSIM. Nonuniform charge deposition is solved from Geant4. The python bindings for Geant4 depends on g4py. The process of solving for the electric field is implemented in DEVSIM by creating a mesh, defining doping, and incorporating models such as the Shockley-Read-Hall model and Hatakeyama avalanche model. In devsim, equations are transformed into integral forms and solved. Timing resolution research of SiC planar and 3D PiN has published based on RASER simulation. TCT study and telescope frame is ongoing.

Author: Dr XIAO, Suyu (Shandong Institute of Advanced Technology, Jinan, China)

Presenters: Dr XIAO, Suyu (Shandong Institute of Advanced Technology, Jinan, China); SHI, Xin (Chinese Academy of Sciences (CN))

Session Classification: Plenary Session Thursday