VCl2022 - The 16th Vienna Conference on Instrumentation



Contribution ID: 192

Type: Recorded Presentation

Garfield++: status and plans

In-depth simulations of the signal formation process are key tools for understanding and optimising the performance of modern particle detectors. This talk discusses recent developments in Garfield++, which is an open-source toolkit for the detailed simulation of detectors that are based on ionisation measurement in gases or semiconductors.

Emphasizing recent work, we briefly review the methods for simulating primary ionisation (focusing on the accurate modeling of primary and delta electrons), for computing electric and weighting fields, for simulating charge transport, and for calculating induced signals (including the modeling of electronic noise and techniques for systems with resistive

elements), and outline plans for further improvements.

In addition to applications in the field of (micropattern) gas detectors, in which Garfield(++) simulations have a strong tradition, we also discuss examples of silicon sensors, without and with internal multiplication (both at finite gain and in breakdown mode).

Primary experiment

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Track Classification: Miscellaneous