Contribution ID: **285** Type: **Poster C**

Realistic Three Dimensional Simulation on the Performance of Micromegas

Over the last few years, the nearly exact Boundary Element Method (neBEM) has been demonstrated to be a reasonably good candidate for solving electrostatic problems related to gas detectors. The recently developed Garfield-neBEM combination has been used here to simulate the performance of Micromegas detectors with realistic dimensions. The variation of electric field due to a change in the cross-section of the mesh opening, their numerical representation and other physical dimensions of the detector has been investigated in detail. The resulting effect on the gain of the detector has also been estimated by obtaining the Townsend coefficient through the use of Magboltz. Other three dimensional effects such as the effects of proximity of hole edge, or the end of the detector itself, have been studied. We have also made estimations of the effects of spacers by varying their dimension and material. In all the above calculations, the tool used for computing the 3D electric field configuration is the neBEM solver that has achieved a good mix of analytical accuracy and numerical flexibility. Finally, we have compared our estimations with other available numerical and experimental values. In the presentation, we will demonstrate and discuss the flexibility and efficacy of the Garfield-neBEM combination using the results from the above studies.

Summary (Additional text describing your work. Can be pasted here or give an URL to a PDF document):

http://dx.doi.org/10.1016/j.nima.2008.07.033
http://dx.doi.org/10.1016/j.nima.2008.12.101
http://www.iop.org/EJ/abstract/1748-0221/4/10/P10013
http://www.iop.org/EJ/abstract/1748-0221/4/11/P11004

Primary authors: Ms BHATTACHARYA, Purba (Saha Institute of Nuclear Physics); Prof. MUKHOPADHYAY, Supratik (Saha Institute of Nuclear Physics)

Co-authors: Prof. MAJUMDAR, Nayana (Saha Institute of Nuclear Physics); Prof. BHATTACHARYA, Sudeb (Saha Institute of Nuclear Physics)

Presenter: Prof. BHATTACHARYA, Sudeb (Saha Institute of Nuclear Physics)