Contribution ID: **1278** Type: **Oral (Student, Not in Competition) / Orale (Étudiant(e), pas dans la compétition)**

WITHDRAWN Two-Hit and Two-Track Resolution of a Micromegas TPC with a Resistive Layer Including the Effects of Charge Induction

Monday 13 June 2016 17:00 (15 minutes)

The Time Projection Chamber (TPC) for the International Linear Collider (ILC) will need to measure about 200 track points with a spatial single-hit resolution close to 100 microns. A Micro Pattern Gas Detector (MPGD) readout TPC with a resistive layer can achieve the desired resolution. A new readout technique using the principle of charge dispersion with a resistive layer on a Micromegas has indeed demonstrated that the single-hit transverse and longitudinal resolution goals have been met. The next step of the R&D for a TPC at the ILC is concerned with two-hit and two-track separation. In this presentation, a detailed simulation of two-hit and two-track resolution study will be presented. Previous simulations of the ILC TPC have not taken into account the induction of charge on the neighboring readout pads caused by the
electrons when they traverse the induction region. The goal of this project is to build and run simulations that take the complete charge induction signals convoluted with the resistive layer response into account for the calculation of the bias correction and pad response function required for a detailed reconstruction of tracks at the ILC TPC.

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Session Classification: M3-5 Cosmic frontier: Dark matter I (PPD) / Frontière cosmique: matière sombre I (PPD)

Track Classification: Particle Physics / Physique des particules (PPD)