Hall C User Howto

Calorimeter Calibration

Vardan Tadevosyan
Maintained by M. K. Jones

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Abstract

How to calibrate the HMS or SOS calorimeter. In the document describes the HMS calibration. The SOS calibration is the same but replace h with s in filenames.

1 Introduction

In short, the calibration goes in two steps. At first, in the course of data analysis, the data on single track electron events are collected by means of the signal of Gas Cherenkov counter. Then, by the end of replay, a calibration is done on the collected data.

(For questions and comments contact Vardan Tadevosyan, tadevosn@jlab.org or Hamlet Mkrtchyan, hamlet@jlab.org)

2 The calibration code in the Analyzer

All the calibration code is in the single file h_cal_calib.f. To get it invoked the parameter hdbg_tracks_cal is set less than zero. There are two calls to the calibration subroutine h_cal_calib: in h_tracks_cal subroutine, and by the end of main program of Engine.

3 Doing the calibration

The calibration is implemented via replay_h_cal_calib shell script. It accepts all the input parameters as the regular replay script does.

The calibration results in calibration constants written in the file PARAMS/hcal.param.¡run_num You may concatenate it to your hcal.param file for using the new constants in replay. As a byproduct, two auxiliary files are generated which may be useful for debugging and checking the quality of calibration. One of them, named h_cal_calib.raw_data, comprises initial data for calibration. The second, named h_cal_calib.cal_data, is of four columns: total energy deposition in the calorimeter, momentum of incoming electron, X and Y coordinates of impact point.