

Guidelines for Result Comparisons

The information given below is taken from the conclusions of the first ILC Analysis Jamboree [\[1\]](#), held at DESY on February 13-15, 2006.

In order to avoid comparing apples and oranges, a couple of rules should be obeyed:

Setup and Data Set

Provide the following information:

- pad pitch and layout
- gas used (preferably P5 as a reference)
- magnetic field
- gain
- noise level (for instance r.m.s. in ADC counts)
- detector acceptance (phi and theta distribution, intercept x_0 , z_0)
- charge deposition of a row (a hit) to show the amount of saturation and noise

Selection

To avoid biasing the results by selecting very specific tracks, the selection cuts should be reduced to a minimum and justified. However fiducial cuts to ensure a good data quality are recommended if needed. Effect of cutting or keeping saturated hits has to be assessed. An estimate of the selection efficiency has to be given.

Resolution

Show residual distributions (for instance at a given z) to allow estimating the tails and the shape.

To define the resolution, use

- RMS of residual distribution, after cutting outliers, not less than $5 \cdot \text{RMS}$ cut (iterative process)
- the geometric mean of fits with and without the test row (the preferred method) to avoid a bias from the track extrapolation error. Also simple methods like the triplet method or the extrapolation between adjacent rows are correct, provided the right statistical factor is used.
- for cosmics, a phi cut at ± 0.1 rad (recommended), for sake of comparison without cutting too much statistics. However, depending on trigger and aspect ratio, one can have to change this. The best, if statistics allows, is to show phi dependence of the resolution. The same is true for theta, here a cut at 0.2 rad is indicated.

Provide the following information:

- fraction of 1-pad, 2-pad, 3-pad hits (especially if one of these categories is rejected)
- fit of the resolution with a σ_0 and a Neff for large enough drift distance that a parabolic dependence can be fitted: $\sigma = \sqrt{\sigma_0^2 + (CD^2/Neff) \cdot z}$
- bias plots (residuals vs position in the pad)
- probability of the χ^2 (if one uses such a fit) or pull distribution

-- PeterWienemann - 26 Jan 2007

This topic: ILCTPC > JamboreeRecommendations

Topic revision: r1 - 2007-01-26 - PeterWienemann



Copyright &© 2008-2021 by the contributing authors. All material on this collaboration platform is the property of the contributing authors.
or Ideas, requests, problems regarding TWiki? use [Discourse](#) or [Send feedback](#)