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Early Plots on SVD Reconstruction Performances

G. Casarosa*

Università di Pisa, Italy

*Electronic address: giulia.casarosa@desy.de

1. INTRODUCTION

This note contains plots showing SVD reconstruction Performances on early collision data. It is meant to provide information for reproducing these plots, to be approved for showing very early results at conferences.

2. DATASET AND TIME STRUCTURE OF BUNCHES

One single Run has been used to produce this plot: Run783 of Experiment 3. It contains 113290 events, all events of the runs have been use, no particular skim has been applied.

It is important to report the time structure of the bunches for this run, as it has direct implication on the cluster time distribution. The

3. RECONSTRUCTION AND SELECTION

The events have been reconstructed with the standard reconstruction of the master release (git commit XXX). The software version used does not differ from the one or release-01-02-03 that is currently used for reprocessing.

The standard reconstruction steps are the following:

- SVD Reconstruction
 1. for luminosity runs the zero suppression cut applied online is 5. This means that only strips with at least one sample with an amplitude greater than 5 times the noise are usable for offline reconstruction. The other strips are suppressed on the FADC.
 2. Strip Charge estimated as the largest among the 6 samples. Strip Time estimated as the average of the times of the 6 samples, weighted with the amplitude of each sample. This average is corrected by the peak time of each strip estimated from local calibration runs.
 3. Strips are combined into clusters: nearby strips are assembled in a cluster. The online zero suppression cut at 5 assures that all strips received or offline reconstruction have enough signal to be attached to clusters. The cluster charge is the sum of the charges of all strips, the cluster time is the average of strip times weighted with the strip charge.
 4. SVD space points are built as all combinations of U and V clusters belonging to the same sensors.
- CDC Reconstruction (no details provided)
- Pattern Recognition
 1. CDC pattern recognition (no details provided)
 2. CKF pattern recognition: extrapolation of CDC tracks towards SVD sensors and attachment of additional hits to the track candidate

3. VXDTF2 pattern recognition: SVD-only pattern recognition, run on the remaining SVD SpacePoints

- Track Fitting: track candidates are fitted to extract the track parameters.

After the reconstruction, we select only clusters related to tracks. We do not apply any selection on the tracks.

4. PLOTS

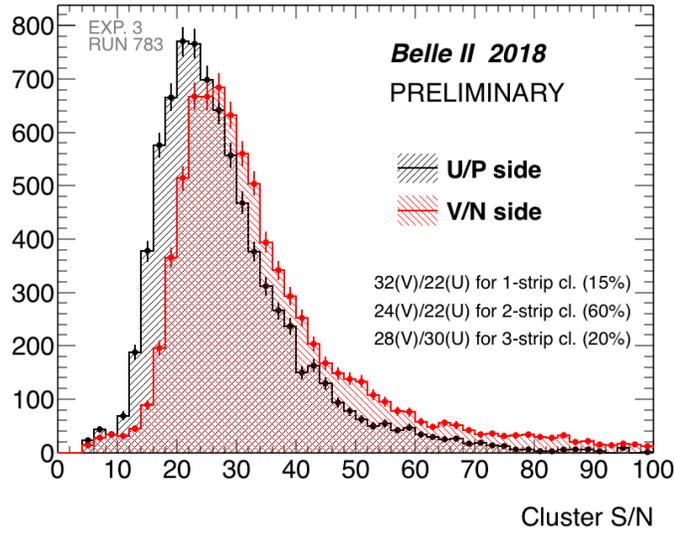


FIG. 1: Signal-to-Noise Ratio for clusters related to Tracks, belonging to all Large Rectangular Sensors.

5. ADDITIONAL PLOTS

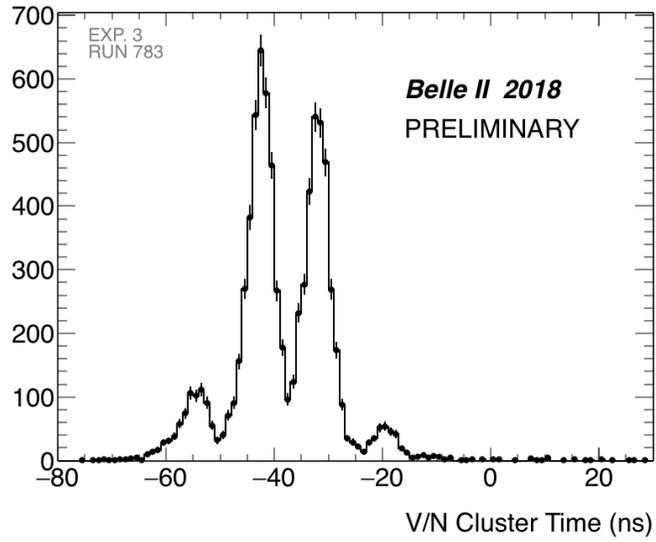


FIG. 2: Reconstructed time for V-clusters related to Tracks, belonging to all Large Rectangular Sensors.