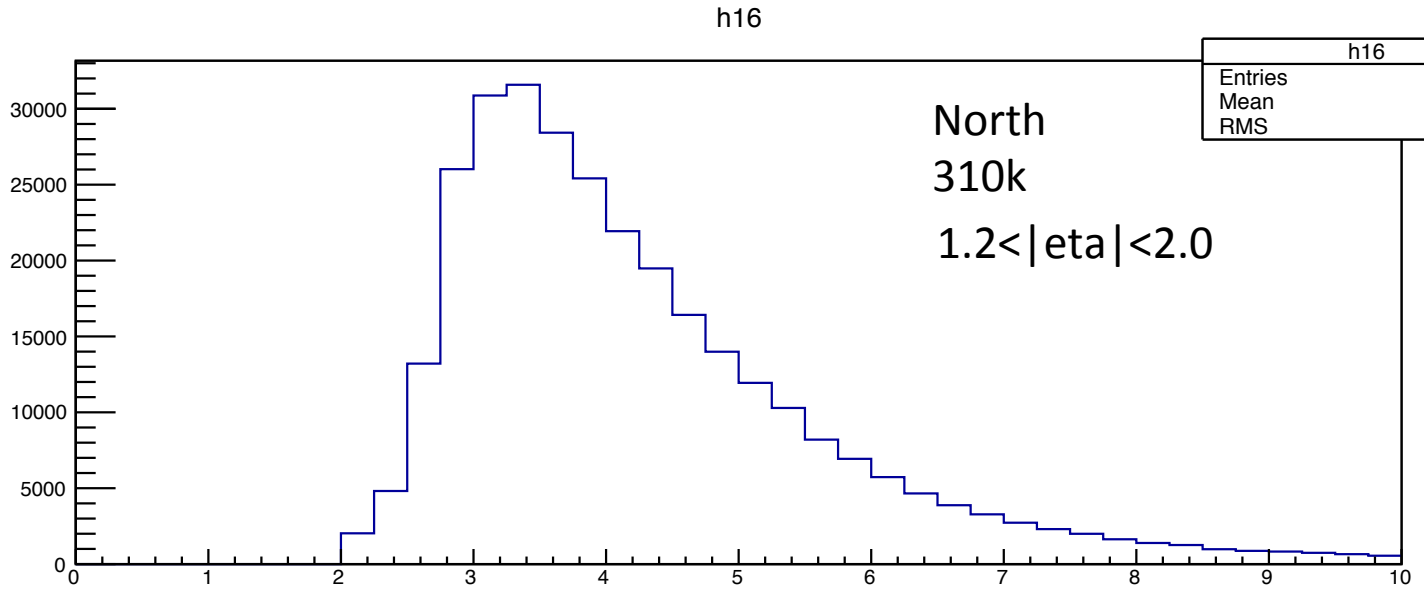
Run15 Data Quality Check: Muon-Arm high momentum sg3-trigger in pp-200GeV

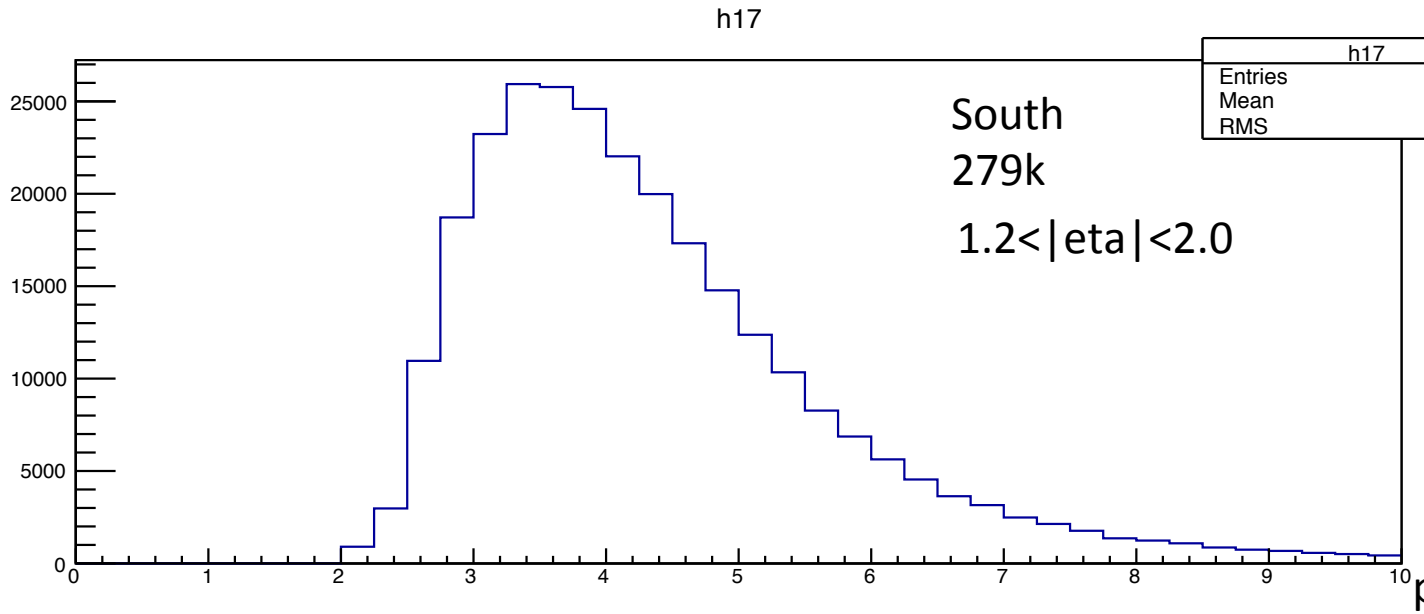
Xiaodong Jiang 3/23/2015

Run427360 BBC_rate=1.56 MHz, March 20th, 2015.
100 minutes. sg3_N: 1kHz, sg3_S: 240 Hz.

sg3&MUID1D triggered good quality muon events



this run alone:
stat. uncertainty:
$\delta(A_N) = 0.5\%$
Each arm



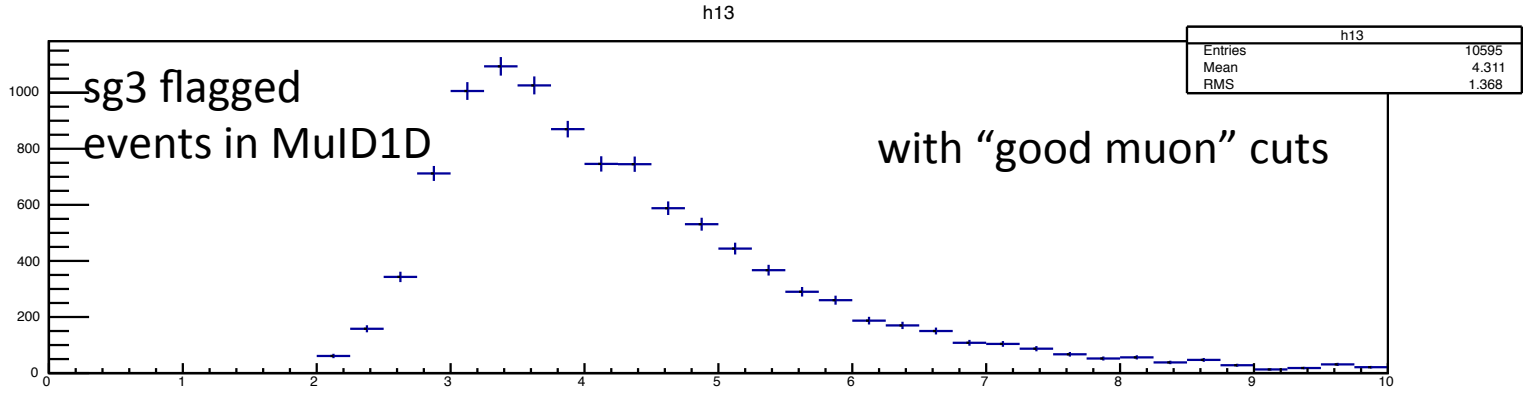
Run15 pp200 should have >100 such good runs.

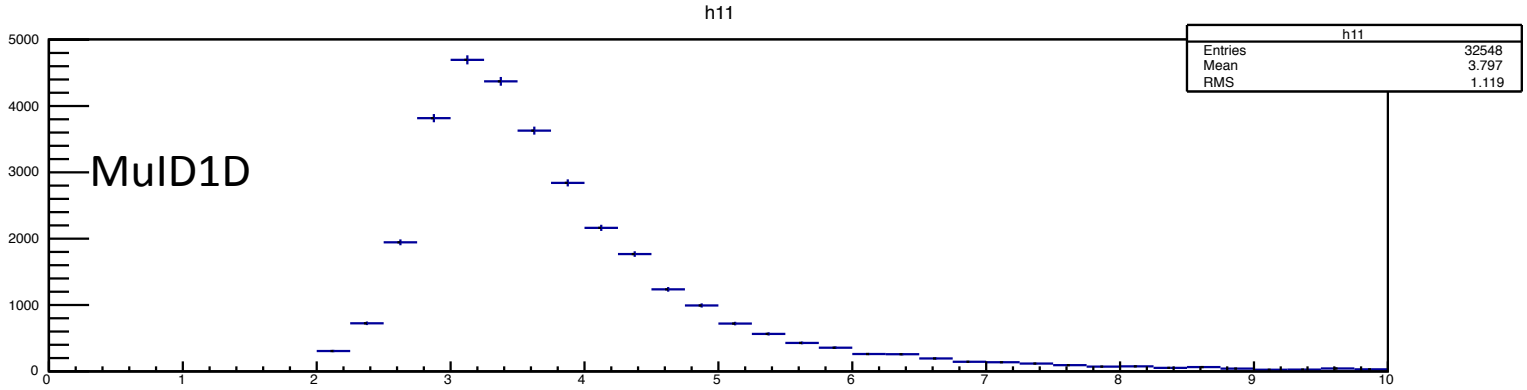
High precision single-muon A_N !!!

Backup Slides

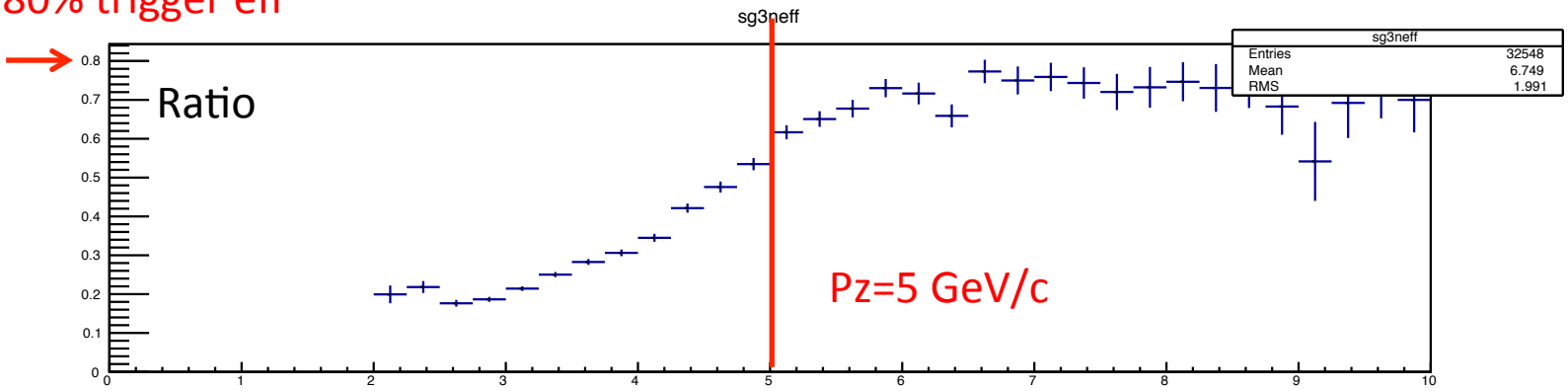
Run-426445, taken on March 14th, 2015

North Arm





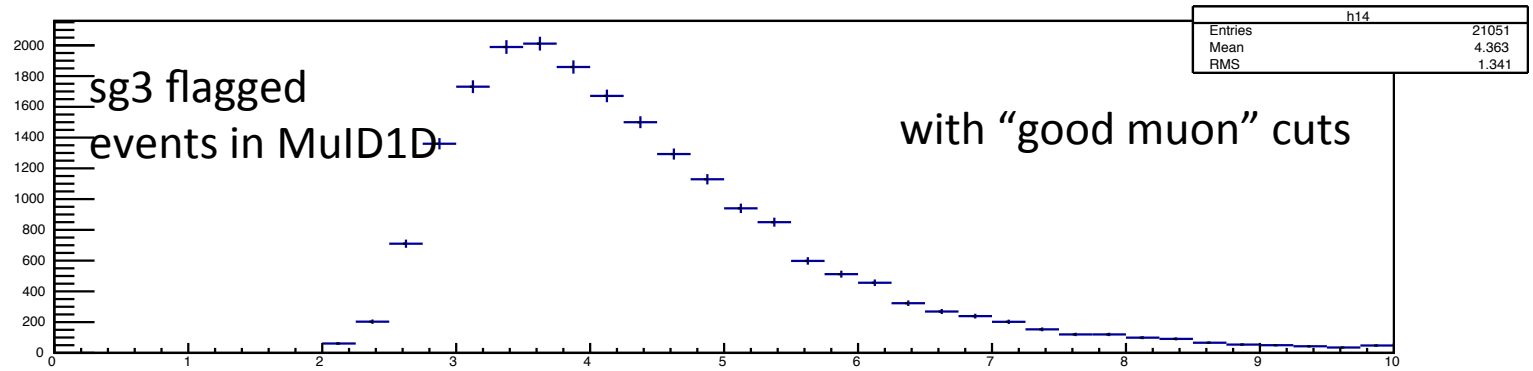
80% trigger eff

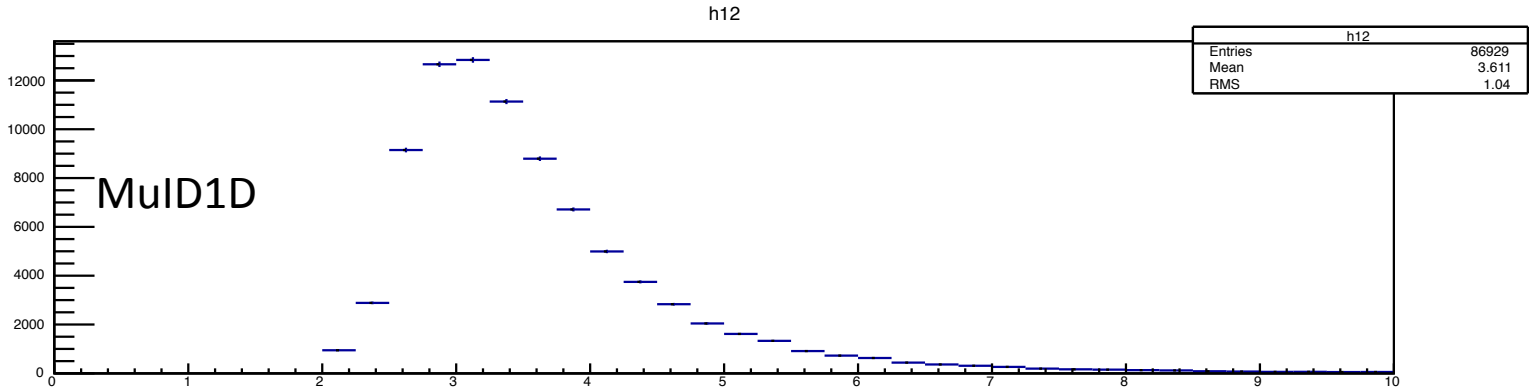


Pz (GeV/c)

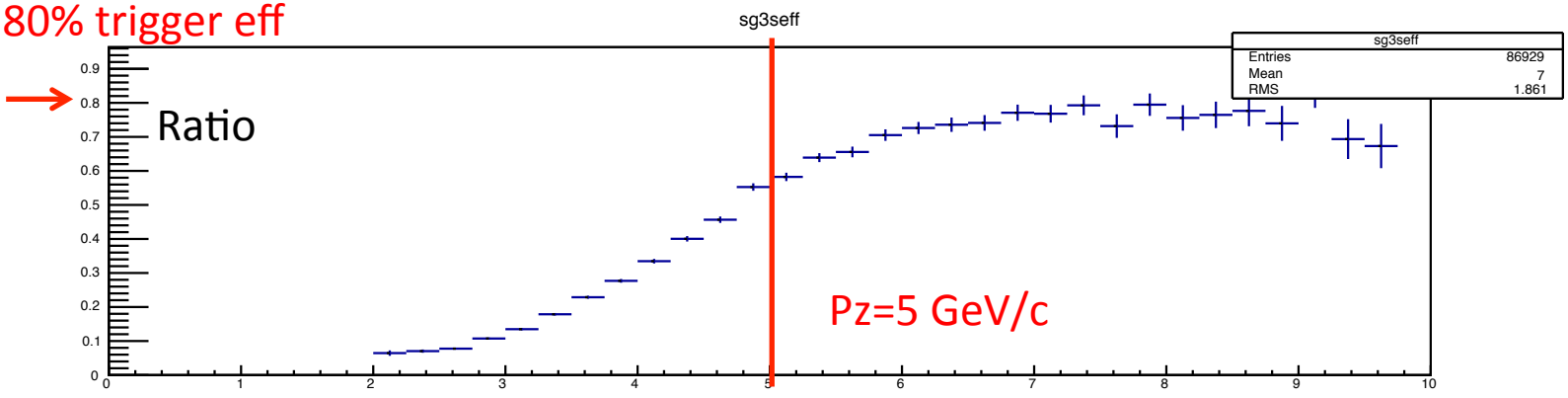
Run-426445, taken on March 14th 2015

South Arm





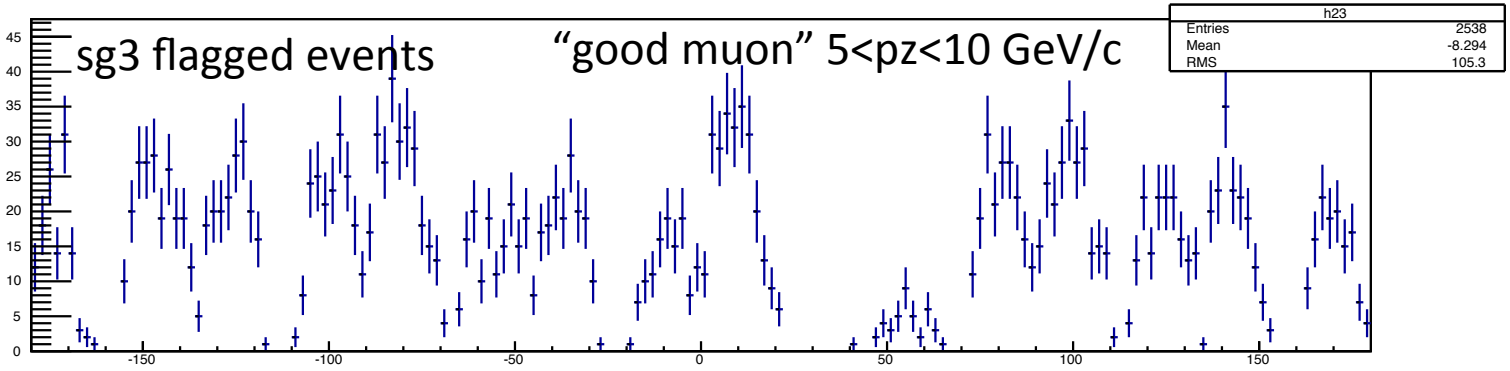
80% trigger eff

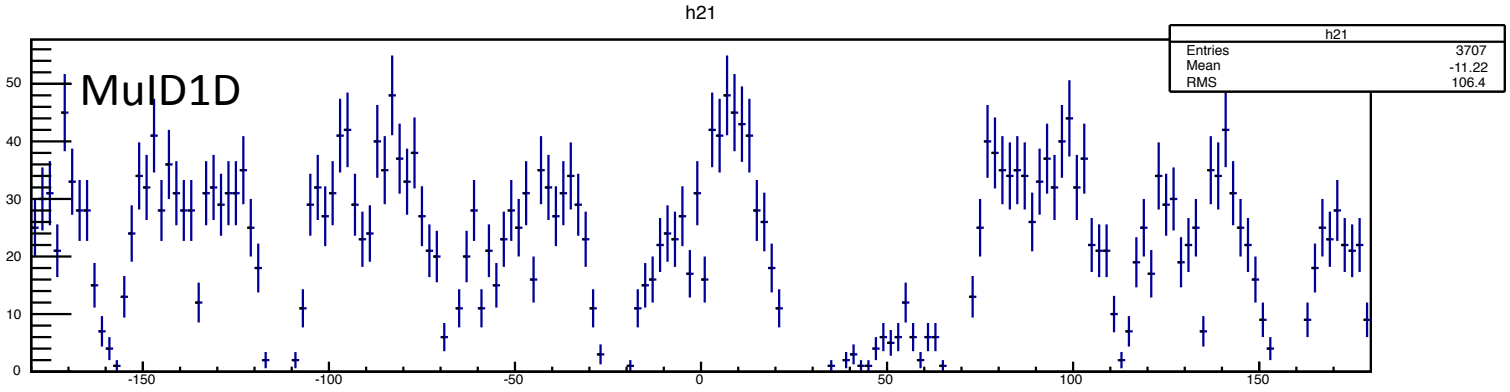


Pz (GeV/c)

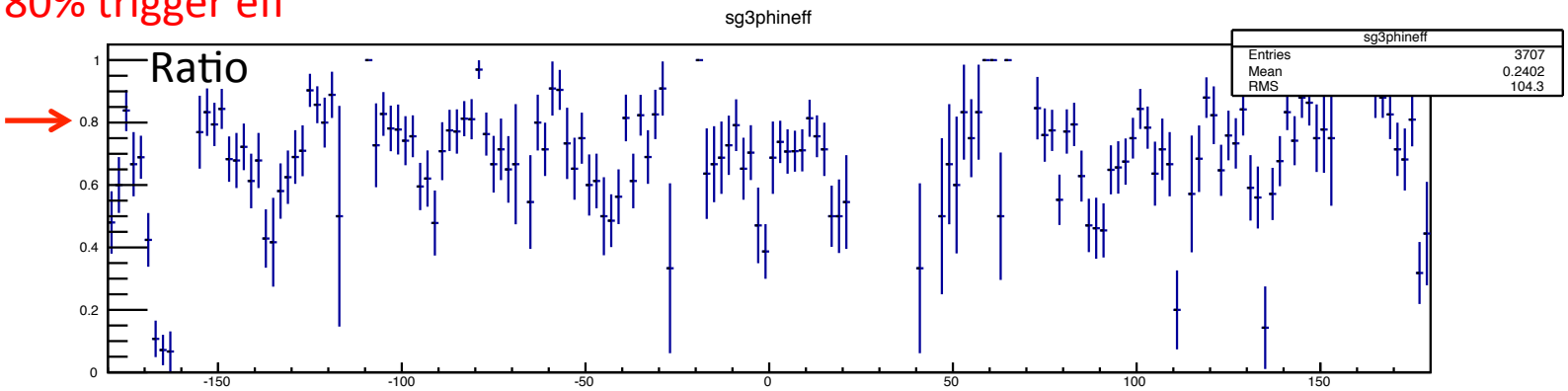
Run-426445, taken on March 14th 2015

North Arm





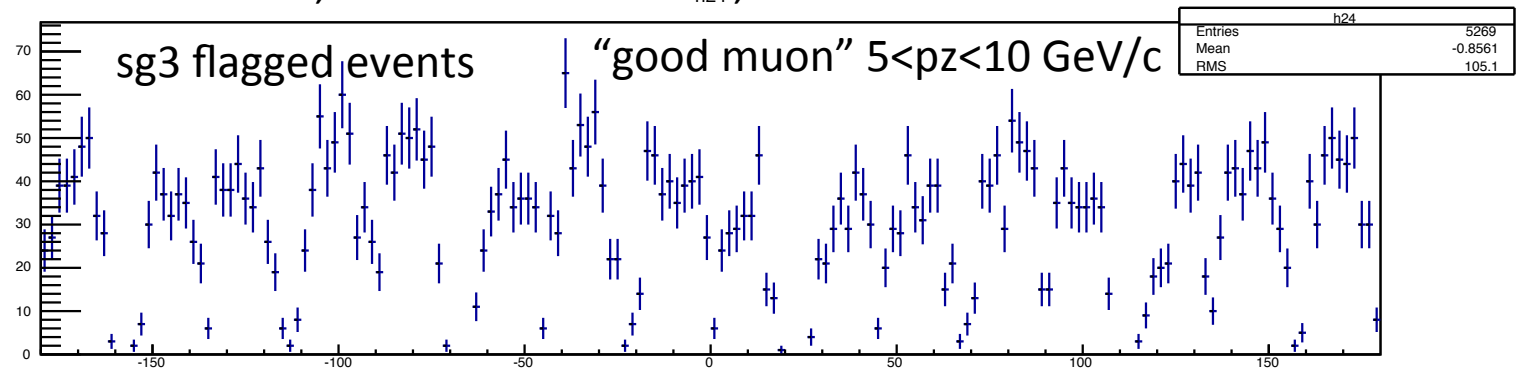
80% trigger eff

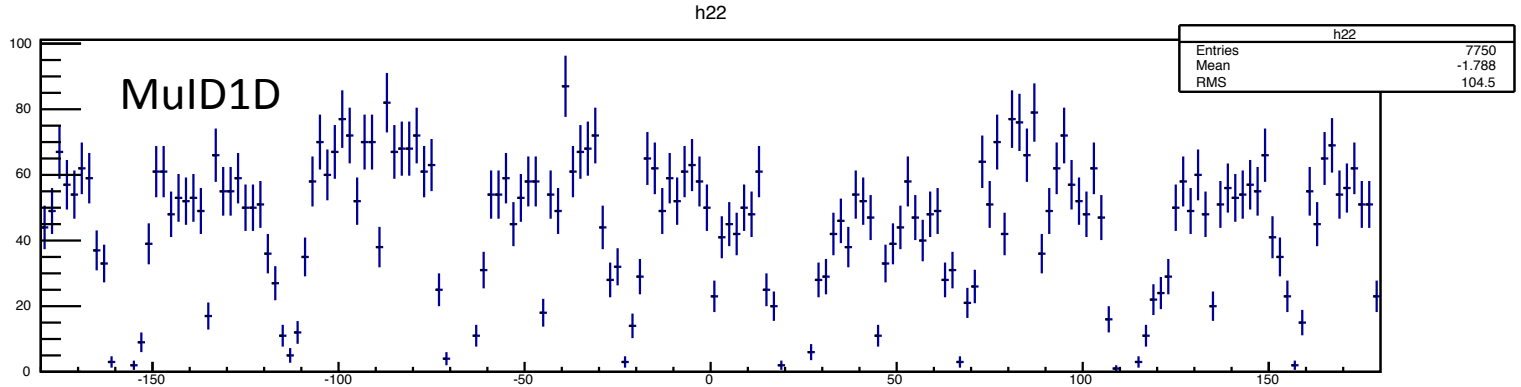


Φ (degree)

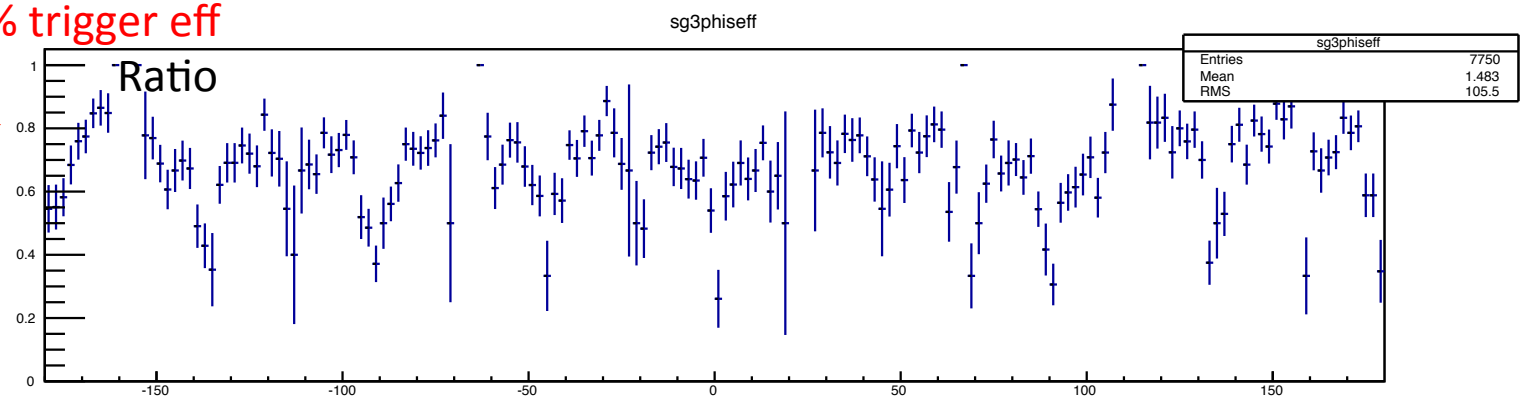
Run-426445, taken on March 14th, 2015

South Arm





80% trigger eff



Φ (degree)

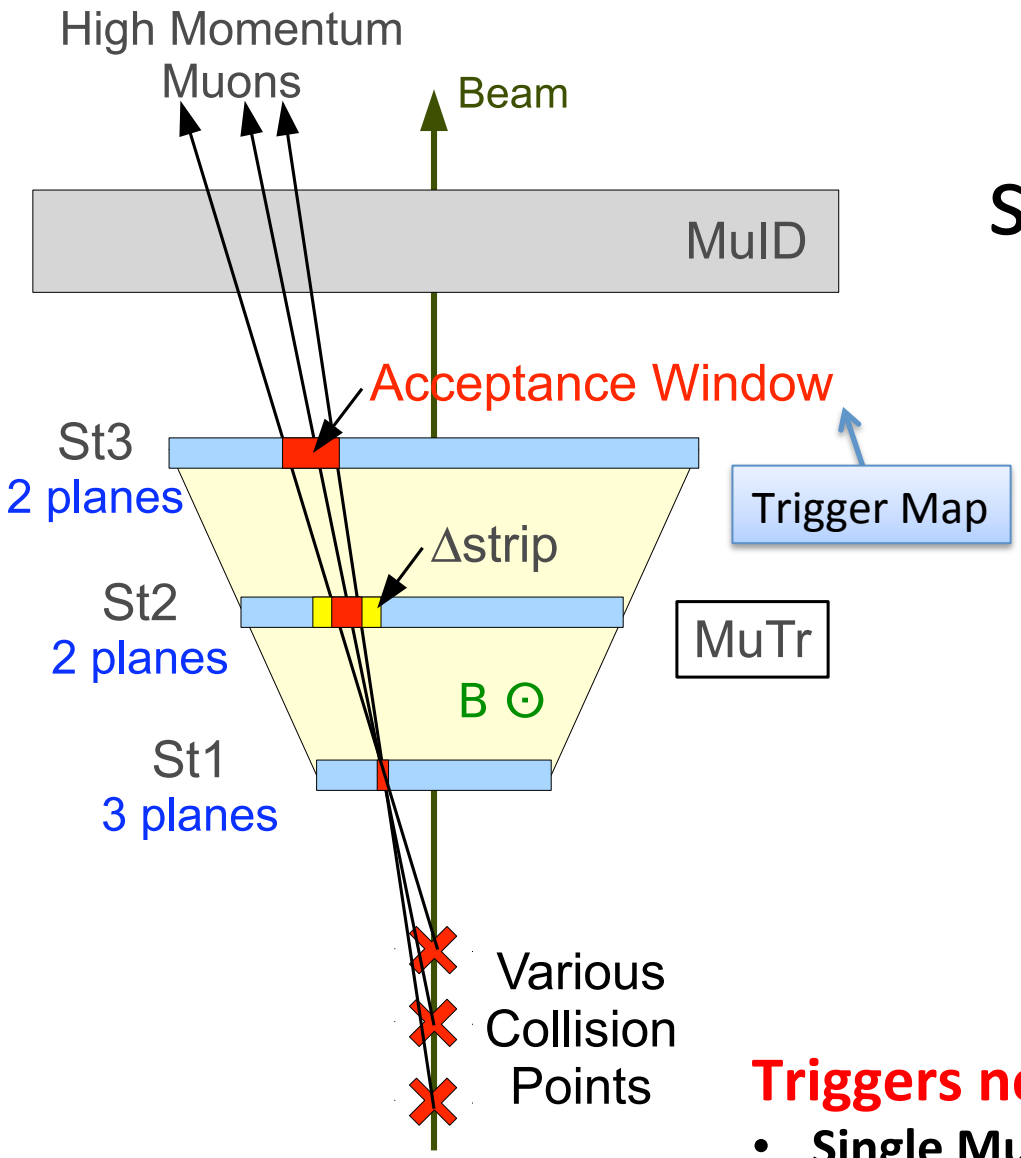


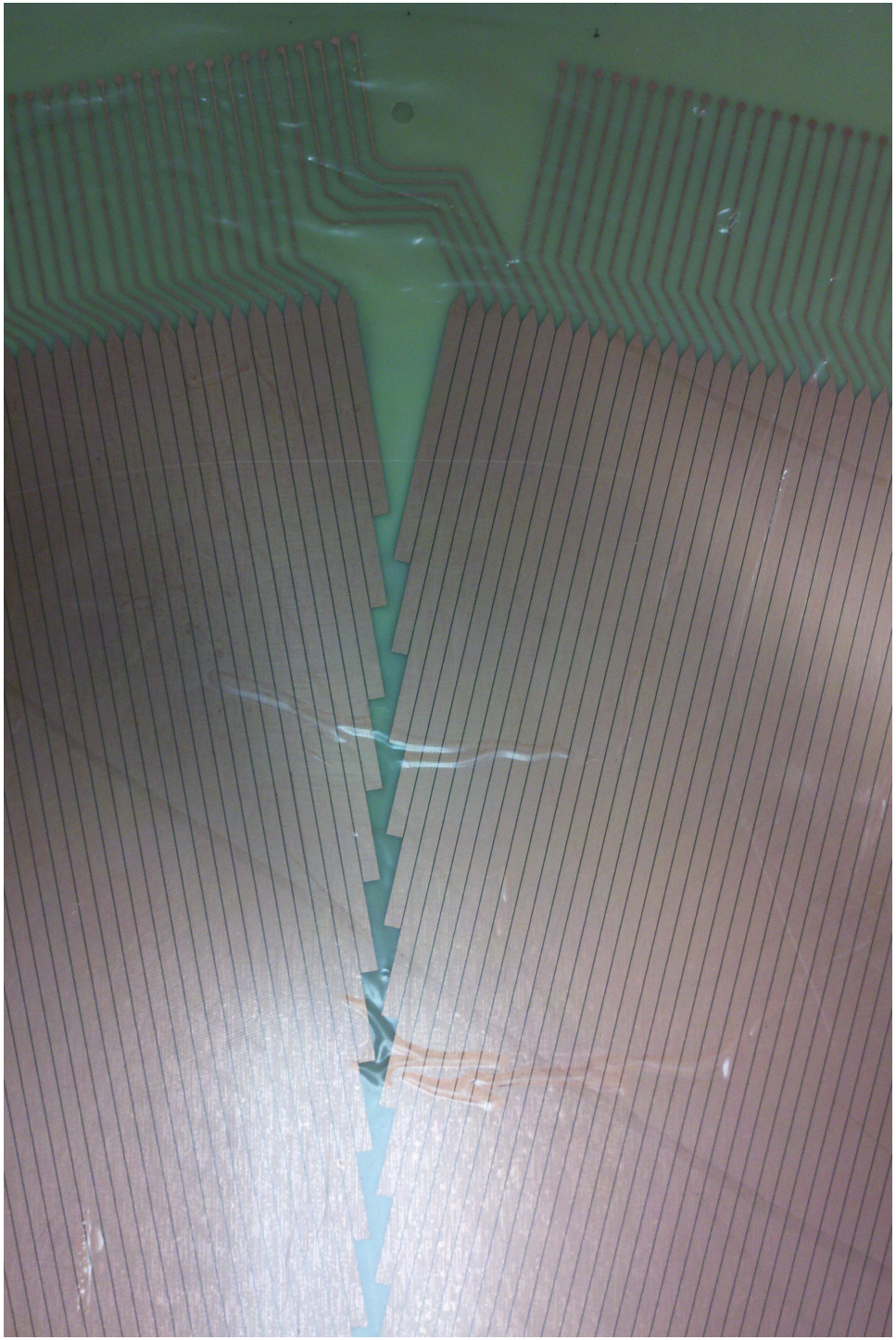
Figure 29: Explanatory drawing for the trigger logic.

Trigger on MuTr stripe hit-patterns (SG3)

Only operates within each **half-octant** of MuTr.

Triggers needed for run15 200 GeV p+p

- **Single Muon: SG3&MuID1D&&BBCLL1 (< 1.5 kHz combined both arms)**



Zooming in on the readout stripe geometry…

Events will get lost when crossing the boundary of half-octants.

Leading to a reduced trigger efficiency.