

Scintillating Fibre Tracker Noise Analysis



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Motivation

- Proper investigation of tracker noise in data is needed to quantify what contribution this has to spacepoints / tracks
- Sci-Fi tracker noise in MC doesn't appear to work properly / at all
- We want to ensure masking of faulty channels is working as expected

Currently

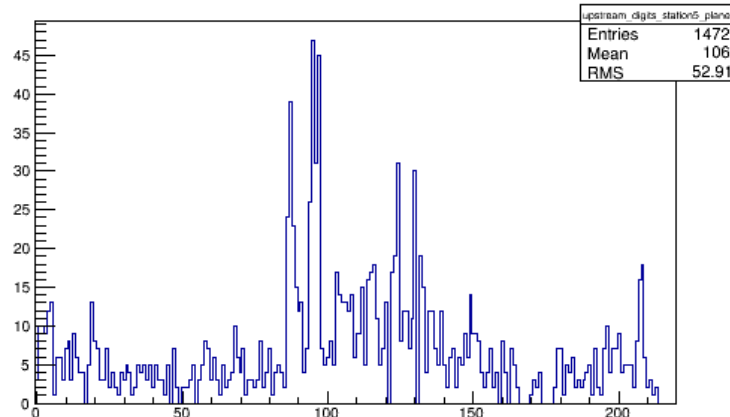
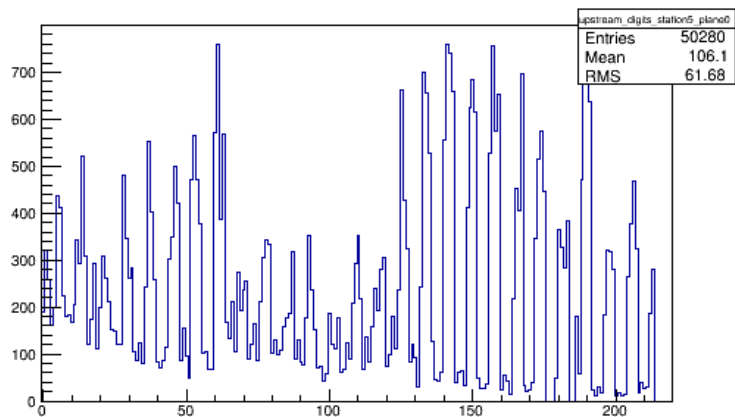
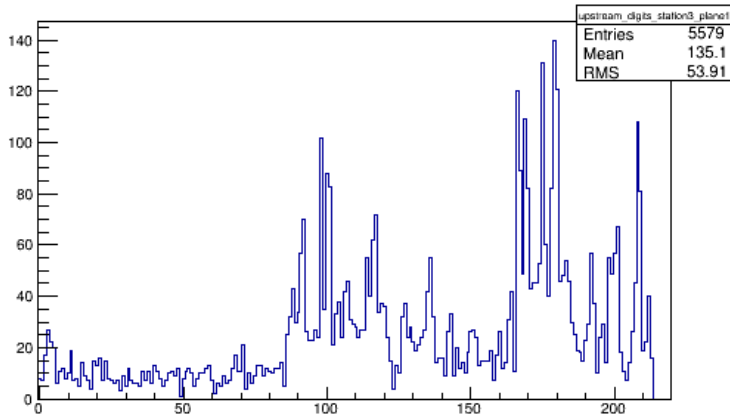
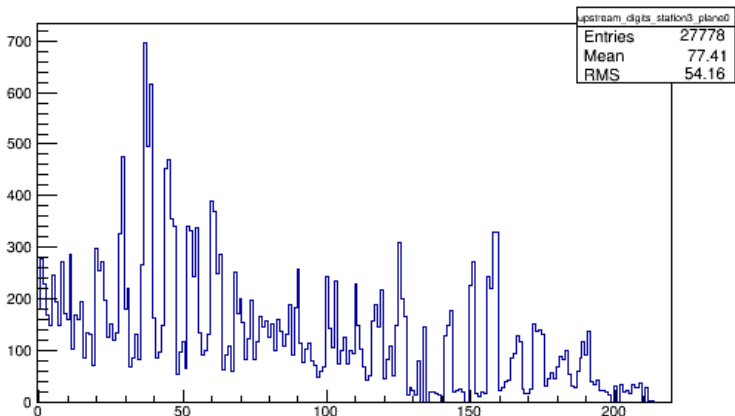
Trying to isolate noise from the data

Selecting for events with :

- exactly 1 track,
- exactly 5 spacepoints, all in track,

then removes all digits associated with the track spacepoints.

Track events with tracks removed - Run 09904



- Large variation in observed 'noise' digits between planes / channels, even adjacent planes show order of magnitude difference.
- Could be VLPC bias, faulty channels... Investigating..

Analysis (to come)

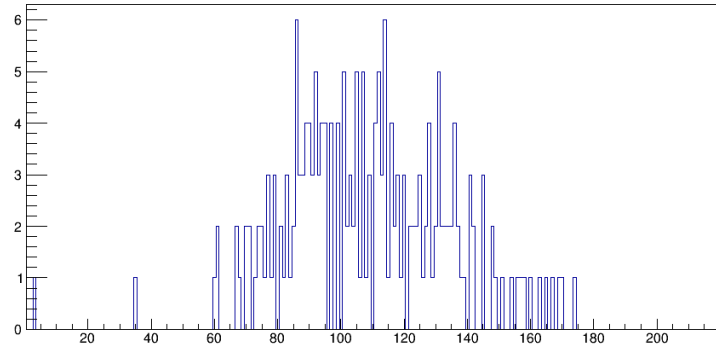
- Look at MC vs data for noise digits above 0, 1 & 2 NPE thresholds
- We expect 1 PE from thermal excitations in 1.5% of fibres per particle trigger, from tuning of the VLPCs bias voltage - want to see how consistent this is for all channels/stations

More to come...

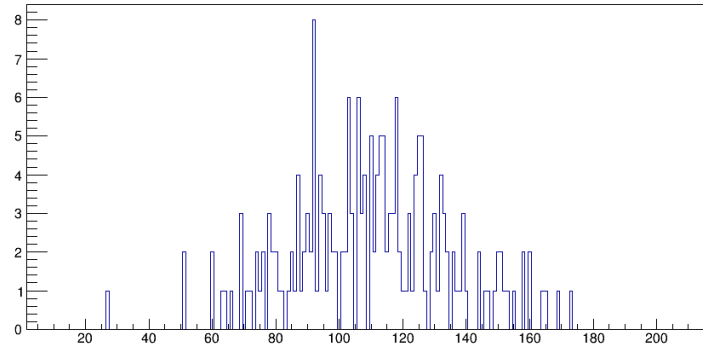
Bonus Slides

MC with no tracks

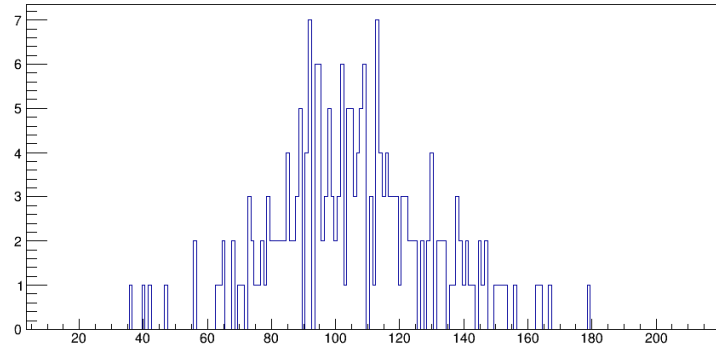
Station 3, Plane 0



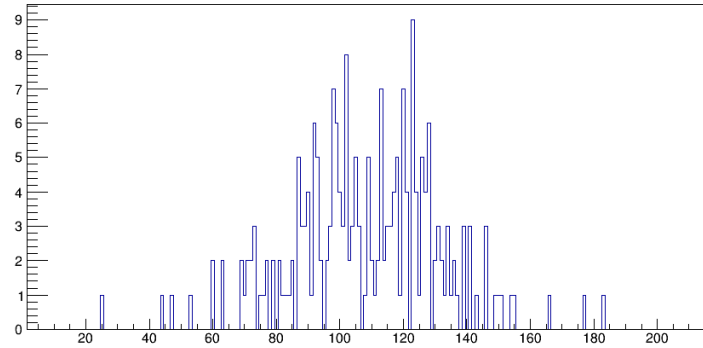
Station 3, Plane 1



Station 3, Plane 2

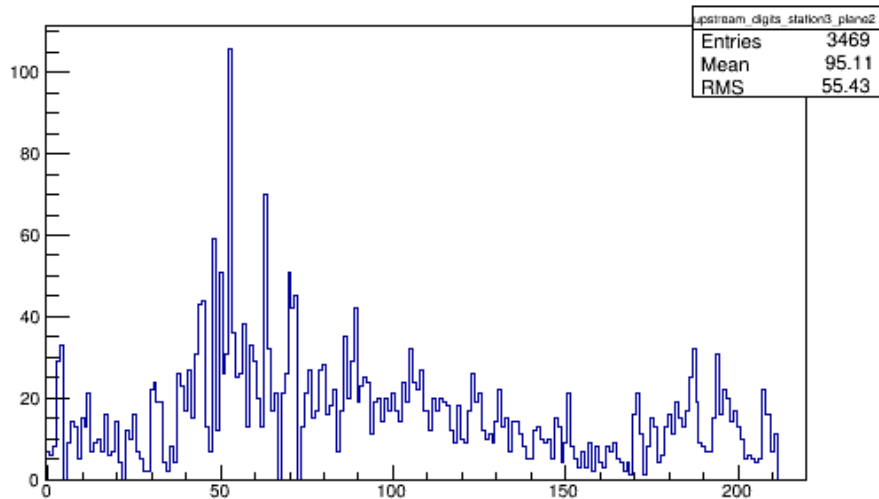


Station 4, Plane 2



Data with no tracks

Station 3, Plane 2



Station 4, Plane 2

