

TOF needs: MICE scheduling

Meeting

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TOF0+TOF1 refurbishing



- many PMTs of TOF0 are very old (bought in 2006 by Alain and others in 2007) and have an old design of the active divider and the valve insulation from mu metal, giving a lot of problems (spikes ...)
- Hamamatsu Japan kindly agreed to refurbish them (kapton insulation/new active divider) if back to firm before 31/12/2010: after it they say it would be OUR problem
- TOF0 has been refurbished in September 2010 and put back in DSA with newer PMTs (about 20 out of 40) , TOF1 was refurbished in Milano in spring 2011 and put back in DSA in June 2011. About 50 PMTs out of 70 changed. It was a lot of work for tests ...



WE NEED NOW TO SEE HOW THEY WORK (CALIBRATIONS...).

WE MAY NOT GO BACK TO HAMAMATSU IN 2012 SAYING WE HAVE DISCOVERED WE HAVE PROBLEMS ...

TOF1 refurbishing



- a MICE note will give details about TOF0/TOF1 refurbishing including lab tests
- each PMT was fully tested for about 2-3 weeks
- TOF1 mechanics improved

MICE Collaboration

MICE-NOTE-DET-XXX

6 July 2011

The Refurbishing of MICE TOF0 and TOF1 detectors

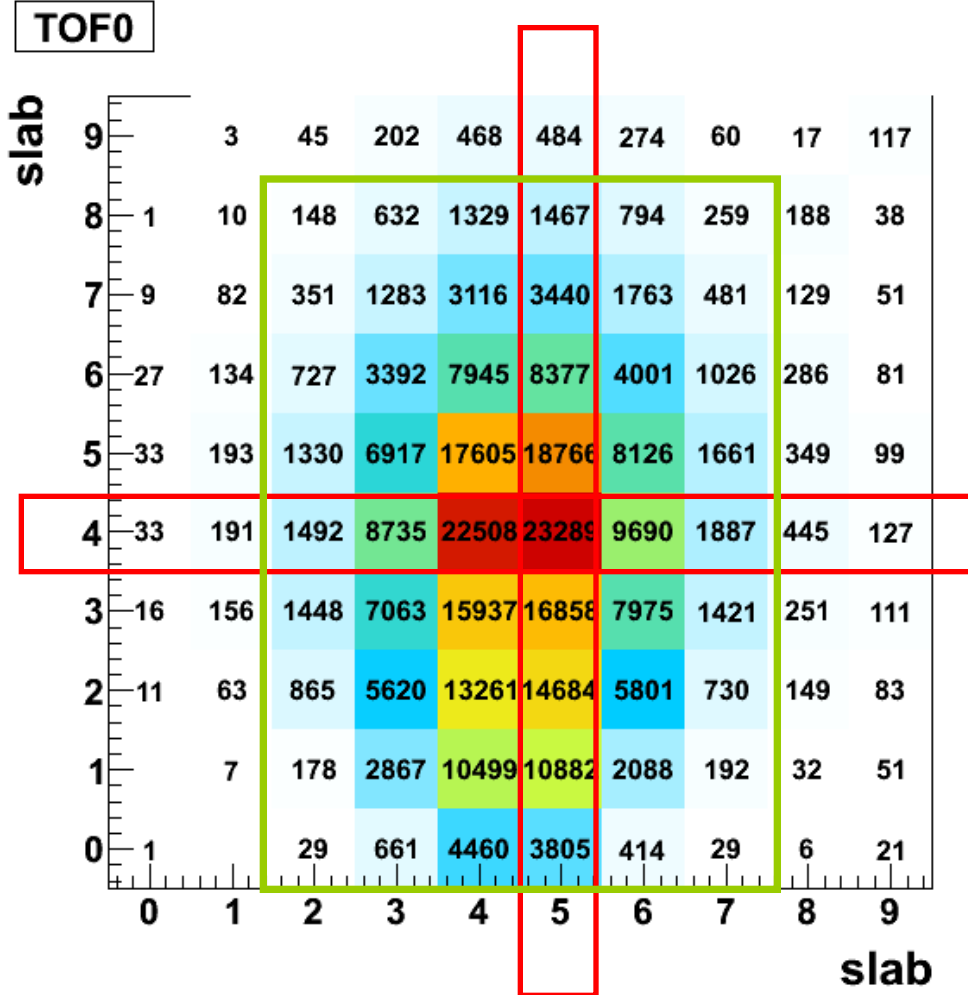
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The TOF0 and TOF1 detectors have been refurbished in late 2010 and beginning 2011. Nearly half of the older PMTs have been sent to Hamamatsu, Japan, for refurbishing and changed with newer ones. TOF1 have been completely rebuilt at INFN Milano Bicocca, with improvements to the detector's mechanics. Before mounting, PMTs have been subject to extensive tests to assess their reliability.

Requirements for Time Walk calibration (from Yordan presentation at CM29)



All you need is particles.
Any kind of beam settings
are OK.

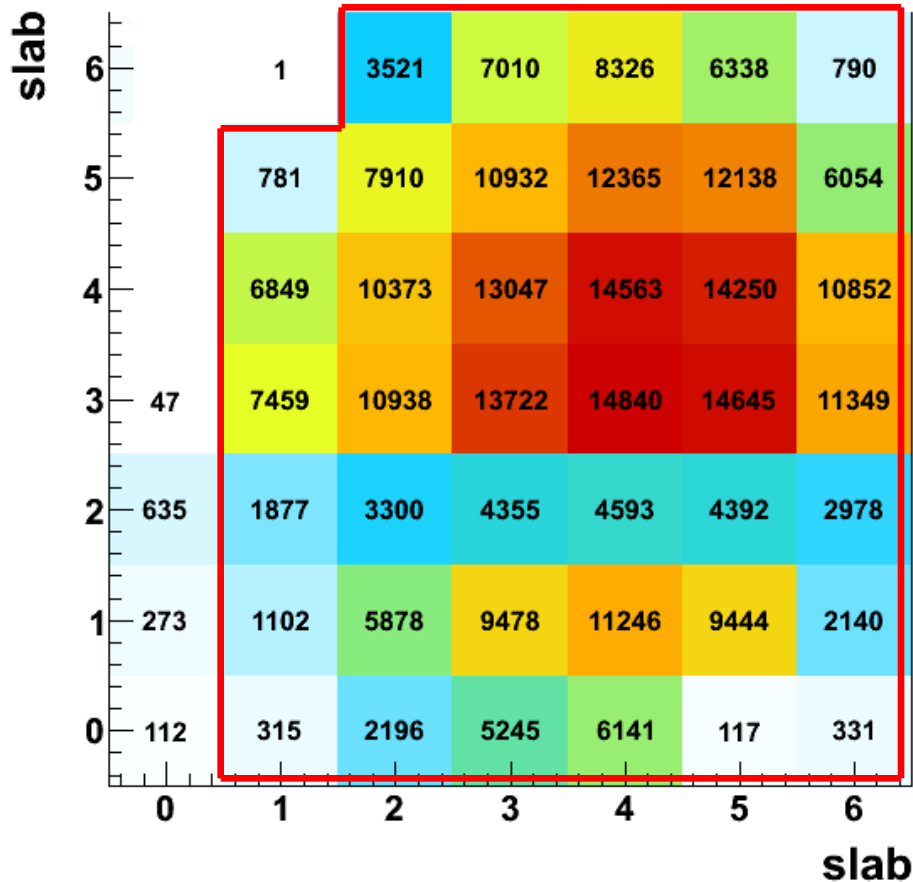
The important point is the
number of hits in the
central pixel of each slab.
We need **>1K events** in
these pixels.

For this particular
example we will be able to
have a TW calibration only
in the green area.

Requirements for calibration of the trigger station



TOF0

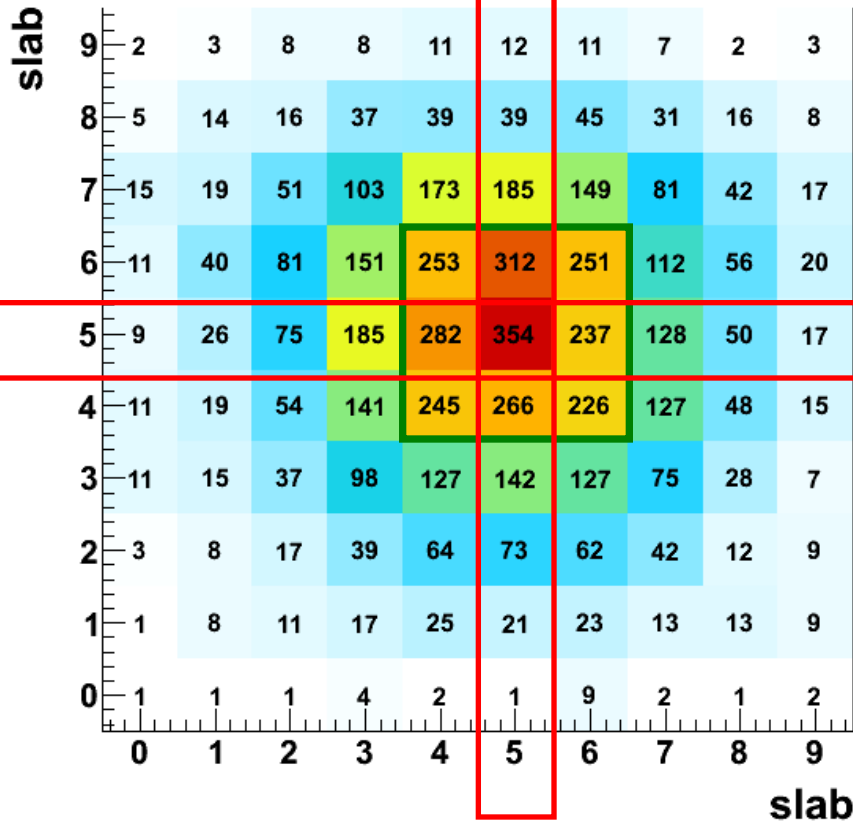


- Any kind of beam settings are OK.
- We need **>100 events** in each pixel.
- For this particular example we will be able to calculate the relative trigger delays only in the pixels inside the red area.

Requirements for calibration of the other stations



TOF2 profile



- We need electrons. => We need electron beam.
- The important is the number of hits in the central pixel of each slab. We need **>200-300 events** in these pixels.
- For the example here we will be able to have a calibration only in the green area in the centre.

Conclusions



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- In July 2011 run we took (if I am not wrong) only: 700 pulses with pi/mu ... and that's all for 2011
 - We may use probably CHKV data for calibrations, with some additional dedicated e^+ beam data (~ 1 V beam loss, 300 MeV/c, TOF1 trigger, 5-10K pulses)
 - I think there is a bonus in de-coupling TOF calibration + CHKOV scans to assess if they work from a run with all stuff in (& nothing works):
 1. We gain some extra months (5-6) to handle un-foreseen problems
 2. To debug EMR it will be fine to have a ready&working TOF/KL/CHKOV system and not just start to do it in Feb
 3. If the new target is available we may test it (if it arrives a little before the scheduled date of December): what about a run in November ?