Slice Studies I

Goals of this session ID/MS misalignment Data samples for trigger studies

Session goals

- The aim for this session is to start listing and evaluating the possible weaknesses of current trigger algorithms
- Two Slice Studies sessions: initially according to potential issues, but now mostly ad-hoc
- First step only! Issues raised here need to be followed up within each working group (slice)
- Should translate list of robustness issues into a list of data samples/code functionality needed for studies
 - A side effect of workshop preparations was getting experience with the data production machinery; this will be useful later

Misalignment

- CSC Misaligned samples generated with **DetDescrVersion-01-02-00**
 - Corresponds to a 5 mm shift of the whole ID (what else?)
 - Too big for normal running: laser alignment can do better than this
 - But needs to be investigated
- In CSC samples, ID alignment is corrected back to nominal in the normal misaligned RDO samples by using the same geometry tag DetDescrVersion-01-02-00
 - Brings back perfect alignment: not realistic, especially for initial data
- Reconstrucing with nominal geometry (DetDescrVersion-01-00-00) also not reasonable - too much misalignment
- Three levels of Inner Detector alignment:
 - level 1: each **ID subsystem** displacement wrt nominal
 - level 2: each layer/disk displacement wrt nominal
 - level 3: each *modules* displacement wrt nominal
 - <u>https://twiki.cern.ch/twiki/bin/view/Atlas/SiliconMisaCSC</u>
 - <u>http://indico.cern.ch/getFile.py/access?</u>
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Misalignment

- Several scenarios:
 - Alignment using FDR alignment constants obtained after 1 iteration (OFLCOND-FDR-01-02-00): "day 1" alignment constants used for FDR1 reprocessing
 - Alignment using "good alignment constants":
 - OFLCOND-CSC-00-01-04: from the ID alignment group; correspond to expected alignment after "some time"
 - OFLCOND-CSC-00-01-05: used for detector paper
 - OFLCOND-CSC-00-01-06: OFLCOND-CSC-00-01-04 + LAR-CSC-000-00 (nominal LAr position)
- With Szymon Gadomski, we produced some (ID) misaligned data to investigate effect on HLT algorithms
 - Use OFLCOND-FDR-01-02-00 (needs DBRelease4.7.1)
 - Many thanks for Szymon, Pavel Nevski and Vakho Tsulaia for help with jobs, production system, and a new DBRelease tag!
- Muon slice used 3 scenarios: misal.ID+aligned MS, aligned ID +misal.MS, misal.ID+misal.MS
 - See talk by Andrea Ventura
- We should assess the trigger needs in terms of special data samples
 Ricardo Gonçalo
 Robustness Workshop 4/3/08
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TkDiff 4.1.3

Solution

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Mon Feb 18 2:19 PM

Beam-related background

- Are beam-gas and beam-halo events going to affect the trigger rates/purity?
- May affect especially forward muons and missing ET
- Lots of uncertainties on modelling of these backgrounds

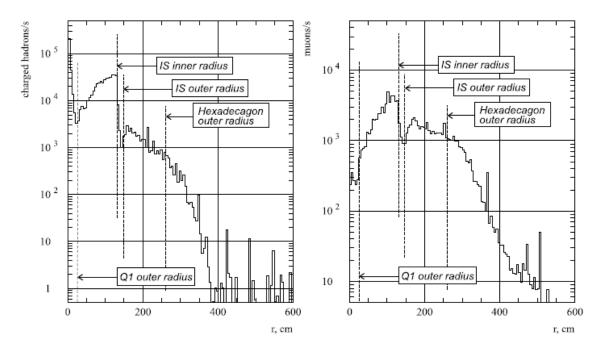


Figure 1: Radial distributions of charged hadron (left) and muon (right) flux at the UX15 entrance. Vertical lines on the plots show the limits of the material of the different elements — Q1 magnet, fixed tube of the inner shielding and hexadecagon of the outer one.

- Only available samples seem to be private ones from Alden Stradling
 - Many thanks to Alden for these samples; they are now becoming very popular! His thesis is nearing completion and expected with lots of interest.
- Looking at 10 beam-halo events overlayed with minimum bias events only!

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Ricardo Gonçalo

Robustness Workshop - 4/3/08

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