

General (Stefan/Kin)

- Kin: Strange ! (that so many different components in C-AD can be broken one after another): SWM since yesterday (cooling first and then remote switching) and now abort kicker (power supply) ... in addition to power supplies and quench detection ... Blame power dips (and global warming) ?! 🤔

Current Priority Items (PC)

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Work Control Coordinators (Chris/Joel)

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Plan of the Day (Stefan/PC/all—to be revisited at end of meeting)

- HCal Cosmics running, include INTT if no chance of beam and cooling conditions met
- Big Partition running with EMCal, HCal, MBD, ZDC, GL1, LL1, sEPD, TPOT, INTT if cooling flow rates allow
- TPOT DAQ studies overnight if needed.
- TPC/TPOT off for TPC thermal studies starting with Monday day shift when TPC/Cooling experts arrive.
- 12 Sample running with HCal and then move to the EMCal

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Evening (Nathan)

- Started shift with 12 bunches in yellow. As soon as beam was injected in blue it was lost. Continued to run cosmics.
- By 7:30 – after some error checking on our part and confirming with Itaru what we were seeing – we started taking long cosmic runs with both HCal and INTT.
- At 8:23 MCR reported another power dip with several alarms and an alarm in STAR. No alarms or any indication of any power dip.

Night (Tom)

- Inherited the no beam status from the latest power dip.
- Three run types were the focus of the shift
 - HCal cosmic triggers w/ INTT in big partition @ 4.3 kHz live (top priority).
 - TPOT independent running tuned established it is faster than big partition.
 - This means that TPOT can be added to big partition and some cosmics transiting the INTT should also be visible in the TPOT.
 - TPC running diffuse laser studies varying GEM HV and trigger timing.
- Productive diffuse laser studies completed after a ~four hour period:
 - Saw current draw on GEMs induced by laser flashes (see TPC report below):
 - Current increases with GEM HV
 - Current increases with laser flash rate.
 - Current enough that FEE should see it if the FEE trigger is timed in.
 - The laser pulse in FEE was not found in the timing scan. We had some evidence that our attempt to scan the trigger timing over a full laser period fell short, possibly due to operator error.
 - Further investigation needed.

- 03:00 Detector Operator felt ill, expressed that we should not be concerned, and was given permission to be picked up by her husband. DAQ operator and Online Monitor person split the Detector Operations duties for the rest of the shift.
- 03:30 TPOT added to the big partition with no reduction in trigger rate. Runs smoothly without crashes or hangs.
- 05:25 INTT/DAQ entered odd mode pushing data without triggers present.
 - The shift crew contacted an expert (Rachid no answer to cell, Itaru answered cell) who recommended a power cycle and then trying to resume.
 - Found INTT LV GUI was frozen and had to be restarted.
 - 06:03 Power cycle effective, but DAQ difficult to start following the aberrant state. See DAQ elog for details.
 - 06:17 Resume big partition.

Day (Caroline)

- **No beam** - RHIC continues to be in a failure. CAS and water group are troubleshooting issues with SWM. RHIC PS group are working on a failed ps (bi8-tq4-ps). Later it is bo10-qf2-ps that has a "AC phase" fault, but ps is still working. They plan to replace this PS during the next maintenance day and the PS can be excluded without losing protection.
- Taking **cosmics in big partition** - HCal, INTT, TPOT. Remove INTT at 10:30.
- Reminded new MCR shift crew that we have sensitive detectors on and asked them to call at least ~10 min before injection. [They have no time estimate at this point.](#)
- 10:15-10:45 access for STAR
- 10:26 **chiller alarm for INTT LAD1** - we turned off the INTT HV, then LV (done at 10:29). Chiller flow drops to 0 l/min for a few seconds, then to 4.56 l/min. We stop the cosmic run, take the INTT out of the big partition, and resume cosmics without the INTT for the time being (at 10:59).
 - Called expert (Itaru) who tells us to monitor the flow; if it is stable for ~ 1 hour **above** 4.9 l/min, turn INTT on again. If it **fluctuates around** 4.9, keep it off since cosmics are not that crucial.
 - INTT LAD1 flow: 10:27 4.56; 10:42 4.95; 10:55 4.91; 11:00 4.99; 11:10 4.88 ; 11:32 4.89 ⇒ Not above 4.9. Monitor for another hour. 11:53: 4.90; 12:14 4.84; 12:21 4.92, 12:24 5.06; 12:30 4.88, 13:07 4.98, 13:14 4.86; 13:52 4.92; 14:08 4.92; 14:26 4.97; 14:38 5.05
- 13:06 MCR calls - they will try to put beam in the machine. Stop cosmic run. Put TPOT in safe state. INTT is still off. They inject 6 Blue bunches, then 12 Blue bunches. SWM (switching magnet) doesn't want to switch to Yellow. They then find during hysteresis a difference to the reference and call in an expert.

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Magnet (Kin)

- Nothing new to report.

MBD (Abdul)

- Nothing to report

Trigger (Dan)

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GTM/GL1 (Martin/Dan/John K)

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DAQ (Martin/John H)

- As discussed at yesterday's DCM, I took over emcal's seb06/Rack 3A1 and connected it to gtm1/ #5. I showed SL Nathan how to undo that switch if needed.

MVTX ()

- Issue with taking triggered was tracked down to the wrong connector on the fiber, being female and not male making fiber alignment difficult.

TPC ()

- Evidence for lasers producing photo-electrons established by appearance of current in the GEMs:



- Laser on current increases with rate.
- Laser on current increases with GEM-HV.
- Laser current should be sufficient to see the pulses so timing scans are done.
- Timing scans indicate a flaw in our understanding of the timing:
 - Each laser flash is accompanied by an off-time noise flash.
 - At 4 kHz the noise flashes are separated by 250 microseconds
 - Despite our belief that we scanned the time by MORE than 250 microseconds, we were unable to see the “neighboring noise pulse”.
 - To be verified again with offline analysis. File copy submitted on condor
 - This opens that possibility that we are simply unable to time-in the laser because we are not scanning the full time range.
 - This effect can be studied even with the TPC HV off.

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HCal ()

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EMCal ()

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TPOT (Hugo)

- With the big partition at 9kHz raw, 4.5 kHz live with HCAL cosmics trigger, I have tried to increase the event rate for TPOT. (reducing endat/convert time and the number of samples). Could reach a configuration where TPOT takes the full 4.5kHz, at which point it was included in the big partition to take cosmic alongside INTT and HCAL.



Current configuration uses 50 samples (as opposed to 100 previously). In principle we need only 25 at most, if properly timed in, so there is still room for improvement. I'll continue tomorrow.

INTT (Cheng-Wei)

- Nothing special to report.

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sEPD()

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Gas/Cooling ()

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ZDC ()

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Background Counters ()

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Online Monitoring (Chris)

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