ATLAS Roman Pots

Readiness for the First Beam

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Beam Interlock System validation

- Both ALFA and AFP fully commissioned (last tests done on April, 8^{th}):
  - injection permit test (check that any single Roman Pot not within the ON-range of the HOME switch withholds the RP INJECTION_PERMIT for its respective beam (B1 or B2)),
  - LVDT-to-Limits comparison (test the proper reaction of pot (retraction in case of validation of warning and/or dump limit) and change of USER_PERMIT (going false in case of violation of dump limit, staying true otherwise)),
  - pot behaviour at various input flags (test behaviour of pots (extraction, loss/no loss of USER_PERMIT) as a function of various beam modes and state of override key),
  - LVDT Bypass Key (test the proper behaviour (restoration of permits) in a various scenarios using bypass key),
  - hardware and software extraction (for each pot test emergency extraction via DCS software buttons and hardware button located in ATLAS control room).
- checklist signed-off,
- usual EDMS document prepared

Currently: Detector Commissioning during 900 GeV Collisions

- Conditions similar to pilot beam we had in Fall 2021:
  - $\beta^* = 11$ m, no crossing angle, TCLs opened,
- Request from AFP similar as during pilot beams: to be inserted "just outside the shadow of TCLs",
  - important data for commissioning of trigger and readout system,
  - very beneficial to have several chances to perform commissioning before first stable beams,
- Commissioning ongoing.
- ALFA will be commissioned in parallel (lower priority) $\rightarrow$ staying in garage would be sufficient.

Beam Based Alignment...

... for collision optics (low-β^*):

- qualify AFP and probably ALFA,
  - AFP will be inserted in all low-β^* runs (incl. all ramp-up steps),
  - ALFA will stay in garage during low-β^* runs,
- tentative dates (accordingly to current schedule) June, 19^{th}:
  - in touch with Jorg – dates still not known,
  - ideally, if it could be done sometime in Week 25,
  - important to know the dates (to assure expert availability) $\rightarrow$ people not based at CERN, travel has to be planned in advance,
  - quite a lot of experts are not available in W26 (conferences, scheduled leaves).

... for LHCf run:

- not clear if only for ALFA, AFP or both $\rightarrow$ studies and discussion with LHCf ongoing.
- important to know beam conditions (optics, collimator settings) $\rightarrow$ discussion ongoing.

... for high-β^* tests:

- qualify ALFA,

... for pp $\rightarrow$ PbPb reference run:

- in case AFP will take data during pp reference run,
- important to know beam conditions (optics, collimator settings).

Schedule: Special Runs

Low-μ Run during 1^{st} ramp-up:

- at 600b step (details under discussion within ATLAS),
- exact μ value to be defined ($\mathcal{O}(0.5)$)

Very low-μ run for ATLAS:

- $\mu \sim 0.005$ and no trains,

TOTEM $\beta^* = 90$ m run:

- only for ALFA,

LHCf run:

- optics studies needed,

Low-μ Run during 2^{nd} ramp-up:

- at 600b step? need to agree with ATLAS,
- exact μ value to be defined,

Other:

- low-μ 'electroweak' runs ($\mu \sim 1$),
- pp $\rightarrow$ PbPb reference run:
  - optics needed,
  - probably possible only if BBA done in advance.