Barrel Tracking Group

- PWG-PP converted to two separate groups:

  - Data preparation group (DPG, see presentation by Chiara):
    responsible for performing data calibration, QA, simulations etc

  - Barrel tracking group (BTG):
    responsible for code development for reconstruction, calibration

- Main task of BTG:

  - Consolidate aliroot code for Run2 + implement missing features

  - Do this in such a way to streamline porting to AliceO2

  - Respond to development request from DPG

- Composition:

  - Small core team of people already working on tracking (Marian, RS ..?)

  - Detector, HLT experts involved in specific task developments

Short-term tasks

- Finalize TPC distortions calibration, including the p-p case and implementation of distortions simulation in MC

- Misc. tasks to start 2015 (and soon 2016) data reconstruction, mostly in view of reducing output data size:

  - ~30% space reduction by prescaling HLT ESDs to %5 of events: <u>done</u>

  - Disk usage is dominated by V0's (up to 50%) and TPC-only tracks (mostly from pile-up):

    - Eliminate V0's made of TPC-only tracks with DCAz>25cm and DCAr>60 cm (to be validated by PGC)

    - Eliminate TPC-only tracks which would not end-up in the AOD (with some margin, e.g. DCA>5cm) if they are not used in preserved V0's

    - Suppress decay product kinematics in offline V0's (redundant since a copy of ESDtracks): will be done only if time allows since requires tests.

Short-term tasks

- apply |□|<1 to V0's (outside dominated by background) and remove V0's below not matching to any of □, K⁰ , □ ot heavy nuclei hypotheses with 20 □ + 50-70 MeV margin (proposed by D.Chinellato)
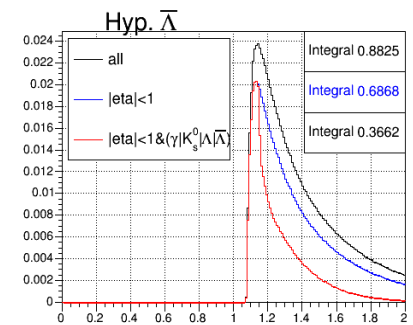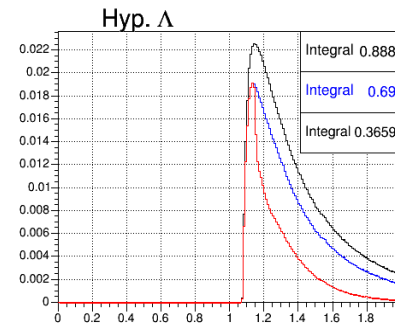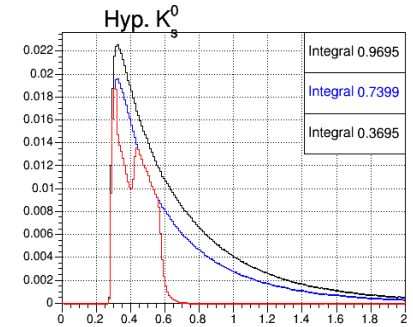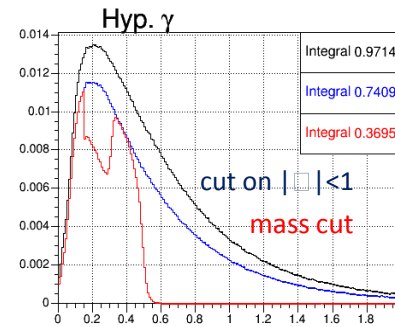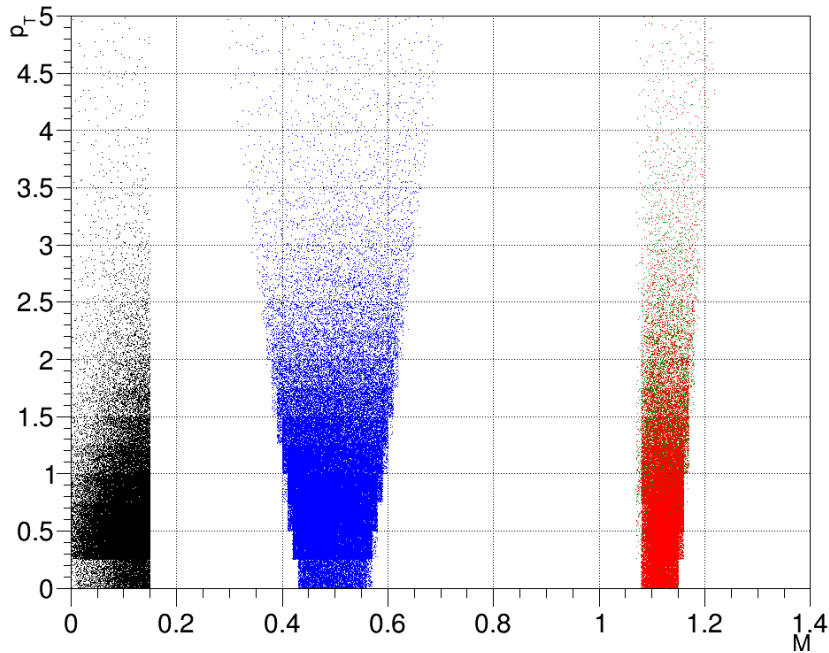
In total, ~60% ESD size reduction to be achieved

Middle-term tasks: TPC

- Moving TPC calibration to HLT (Run2, prototype for Run3)
    - Prerequisites:
    - TPC HLT reconstruction to be validated in presence of distortions + mechanism to apply large corrections at sector merging
    - Fast ITS standalone tracking in HLT: done
    - Fast TRD tracking in HLT: <u>to be done (development needed also for Run3)</u>
    - TOF is an option
    - ITS-TPC-TRD matching procedure working in presence of distortions

- Speed-up of TPC dE/dx calculation during reconstruction (currently ~20% of CPU) + eventual porting to HLT tracking (needed for Run3)
- Speed-up of TPC ion-tail and cross-talk calculation (currently ~15-20% of CPU)
- Finalization of TPC dE/dx calibration with "transfer function"

Middle-term tasks: TRD

- Including TRD into global tracking:
    - Prerequisites:
    - [proper TPC calibration]
    - Including TRD calibration into global alignment/calibration (Millepede)

Middle-term tasks: vertexing

- More robust version of MultiVertexer with pile-up analysis capabilities for Run2 and as a prototype for Run3 (started by J. Niedziela)
    - Prototyped in HLT ITS-track vertexer (part of ITS standalone reconstruction)
    - Need to add:
        - mean-vertex constraint
        - iteration over pile-up vertices
        - Bayesian analysis of pile-up probability