Electrons from Dalitz decays

Idea: tagging electrons from Dalitz decays
→ clean sample of prompt electrons: electron DCA resolution, data-driven efficiency…
→ can also tag tracks for later rejection (for prefiltering)

Task: O2Physics/PWGDQ/Tasks/DalitzSelection.cxx (o2-analysis-dq-dalitz-selection)
→ tag electrons passing **single track cuts** (quality, electron PID) + electrons must be **paired and pass pair cuts** (small pair mass, photon conversion rejection (e.g. here section 4.3.1))
→ QA histograms within the task + information on tagged tracks can be passed to tableMaker (or tableMakerMC) through dalitzBits table (same principle as V0Bits)

If any question: contact Gauthier Legras

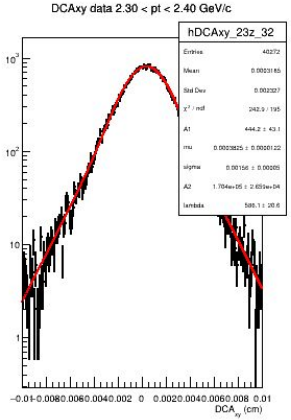
Running the task

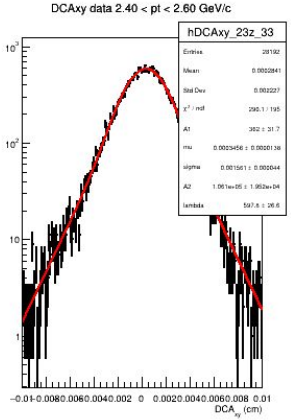
Running standalone: o2-analysis-pid-tof-full -b --configuration json://configDalitzSelection.json | o2-analysis-pid-tof-beta -b --configuration json://configDalitzSelection.json | o2-analysis-pid-tof-base -b --configuration json://configDalitzSelection.json | o2-analysis-multiplicity-table -b --configuration json://configDalitzSelection.json | o2-analysis-ft0-corrected-table -b --configuration json://configDalitzSelection.json | o2-analysis-timestamp -b --configuration json://configDalitzSelection.json | o2-analysis-pid-tpc-full -b --configuration json://configDalitzSelection.json | o2-analysis-pid-tpc-base -b --configuration json://configDalitzSelection.json | o2-analysis-event-selection -b --configuration json://configDalitzSelection.json | o2-analysis-track-propagation -b --configuration json://configDalitzSelection.json | o2-analysis-trackselection -b --configuration json://configDalitzSelection.json | o2-analysis-dq-dalitz-selection -b --configuration json://configDalitzSelection.json

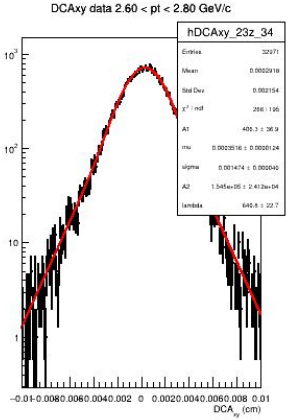
Running with table maker: python3 O2DQworkflows/runTableMaker.py configDalitzSelection.json -runData --arg table-maker:processBarrelOnlyWithDalitzBits:true --add_track_prop

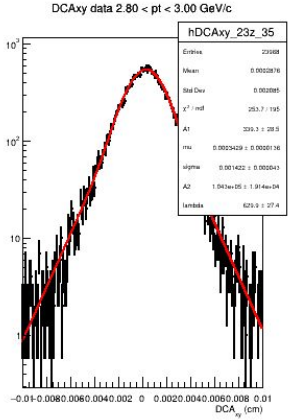
On the configuration (barrel_files_Nov2023/Dalitz/configDalitzSelection.json in the cernbox)**:**
→ Each track cut associated with one pair cut
→ Here, first cut tags electron from dalitz for dca resolution, second cut tags tracks for rejecting them (prefilter)
→ On hyperloop, see also e.g. wagon DalitzElectronSelection_Corr in PWGDQ-75

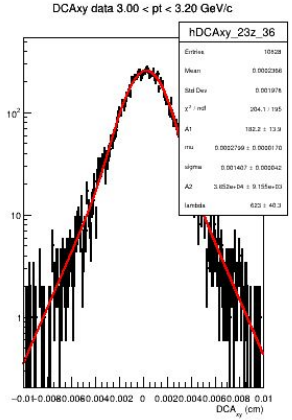
Example: electron DCA resolution

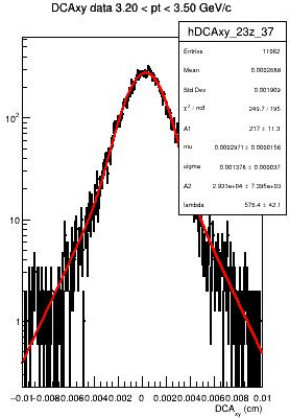


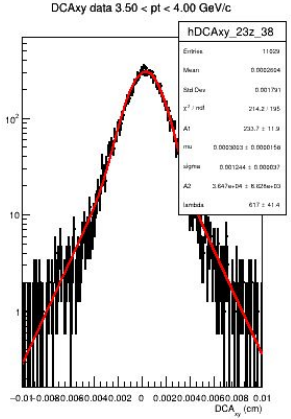


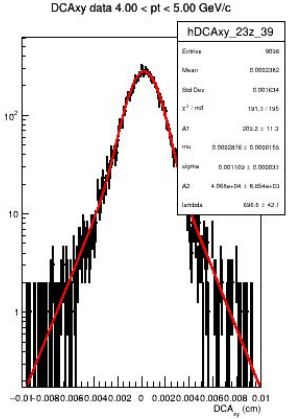


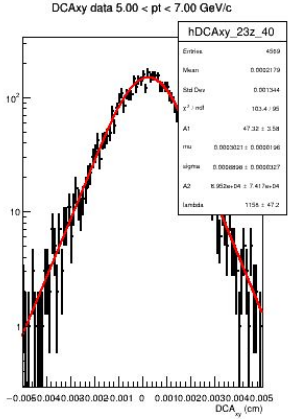


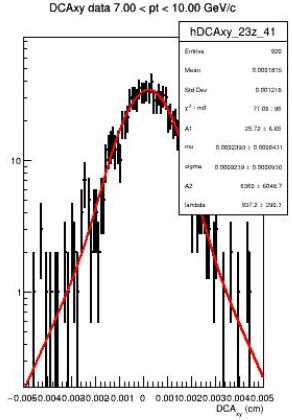












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