

# ***PAT AODFix Discussion***



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- General idea: Fix some objects that still are not optimal after a reprocessinging
- Staco muon collection problem in release 16
  - Due to assuming wrong energy loss in calorimeters by an extrapolation tool in newer geometries
  - Affects mostly low- $p_T$  muons ( $\sim 5$  GeV); investigation for higher- $p_T$  muons is still ongoing
  - Will probably also need to re-compute missing  $E_T$  and b-tagging
  - This one seems to have the highest priority right now
- Electron (and photon?) IsEM cuts in release 16
  - Want to apply a new set of electron identification cuts to re-fill the IsEM bit mask
    - This one would not be needed if IsEM would NOT be an EDM variable, but only a method for applying the identification cuts
  - Possibly also re-calibrate the energy of electron and photon objects eventually
    - Also this would probably need re-computation of missing  $E_T$  and b-tagging
- Possibly also taus
  - Apply a better energy calibration
- More will surely come, and not only this time, but after many reprocessings

- The new AND old version of the object should be kept
  - By default, any job should always read the newest available version of an object
  - This should be doable with StoreGate versioning (existing already)
  - What about ElementLinks pointing to these objects and from them to other objects?
  - Can the size of the containers change?
- We have to create a new way to write into MetaData what fix has already been applied and which version of (several different) StoreGate containers that corresponds to
  - The fixing tool has to check automatically if the fix was already applied and not re-apply it
  - The MetaData information also has to store the version of the applied fix since one can imagine that a newer version of the same type of fix is needed
- How to store the actual fixing code?
  - The problem is that most tools that need fixing are used in the standard reconstruction and we cannot just change it due to the frozen tier0 policy
  - We probably want to create ONE special analysis cache (always from the most recent AtlasProduction cache) collecting all AODFixes, e.g., 16.0.3.2.1
- Do we need to re-run (parts of) reconstruction or do we fix a container only?
  - Probably case by case, depending on the problem at hand
  - For now, do this by hand – eventually, Getters may be able to take care of this