

Development Wishlist

Potential improvements

- **Geant:**
 - Workaround for G4 energy loss bug in 18 series (G4 6.1)
 - Error in in G4 cross sections for pions
 - Several other potential improvements in more recent releases (talk by D. Wright)
- **Detector material model:**
 - “When we do precision mass measurements, we make a correction in reconstructed mass by adding (ad-hoc) 20% extra SVT material. Such material needs to be added to the simulation for an accurate reproduction of the data.” (David Williams -Charm AWG)
 - SVT matching cards and cables not present in current model
- **Charged/neutrals:**
 - The fact that PID-tweaking and neutrals corrections exist imply that the simulation is not perfect
- **DCH**
 - DCH ROM feature extraction bug modeling suboptimal (talk by J. Wilson)
 - Residual pseudoefficiency issues in 18 series? (talk by K. Hamano)

Potential improvements

- **EMC:**
 - Gamma and pi0 resolutions overestimated and multiplicity of low-energy clusters not well modeled
 - Modeling of EMC shower shapes (talk by Roberto Sacco)
- **DIRC:** No substantial issues (?)
- **IFR:**
 - LST simulation added for Run5 / SP8 and both RPC and LST hit efficiencies tuned for SP8. Anticipate additional LST validation and tuning in future (note that proposed G4 changes have potential to impact IFR simulation)
- **L1 trigger:**
 - Substantial upgrade of entire L1 simulation for SP8, including modeling of Run 5 hardware upgrade
 - Currently no active simulation effort
- **Generators:** Development will continue irregardless of other simulation development activities, hence are not specifically addressed in this workshop