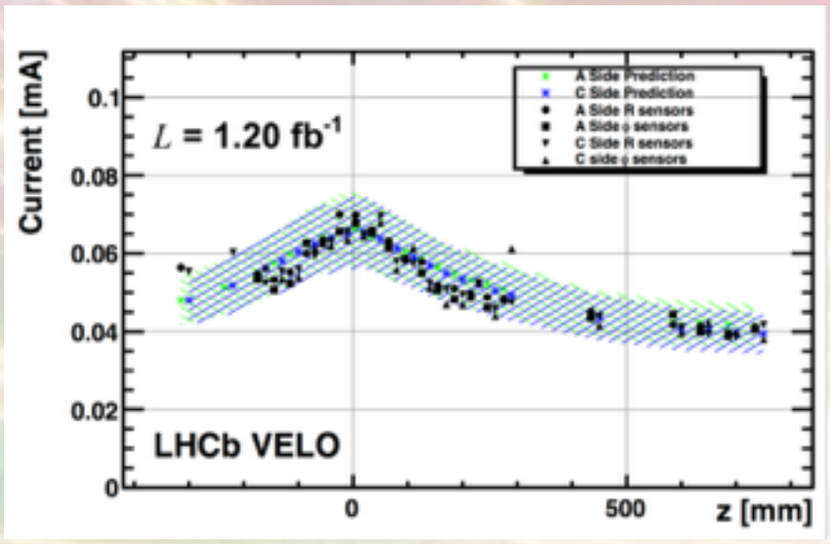
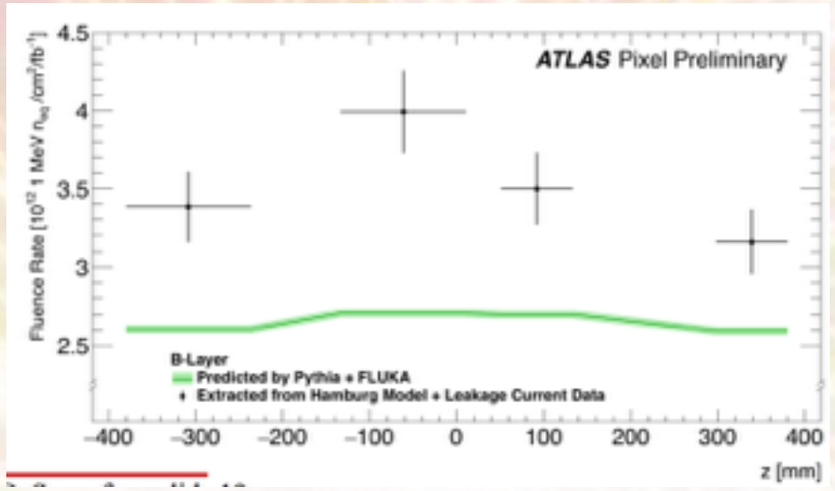
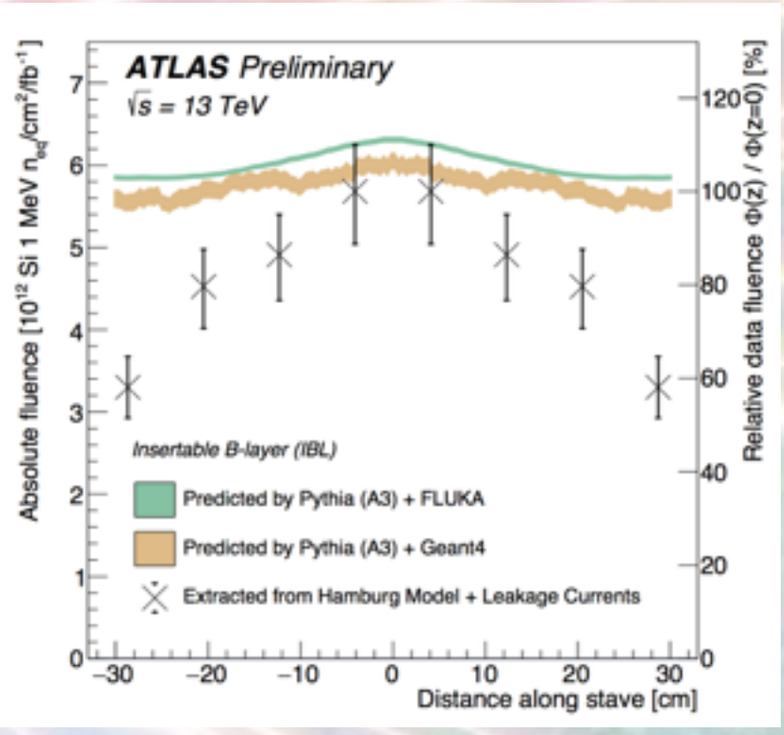
Inter-experiment discussion on radiation simulation safety factors

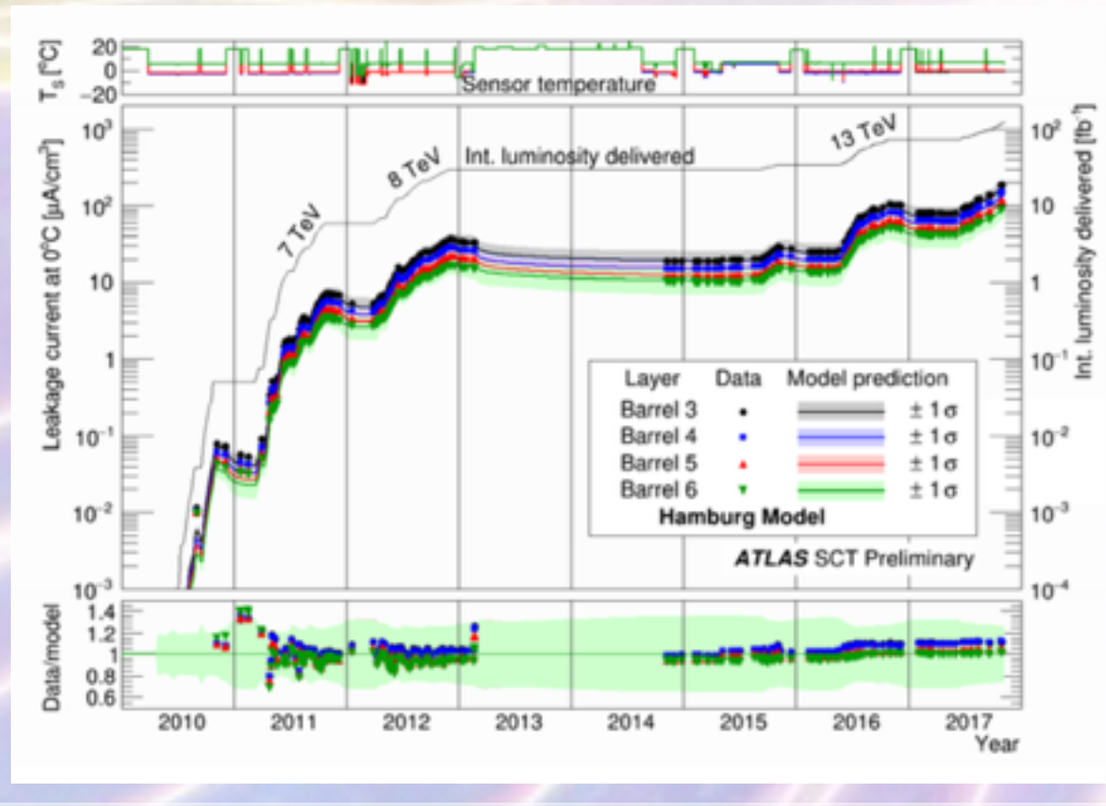
- On ATLAS, for inner tracker (ITk) upgrade studies, we recommend a simulation safety factor 1.5 to be applied to the predictions for 1 MeV new fluence, dose and hadrons > 20 MeV
  - ➡ Based on Run 1 benchmarking in the inner detector systems
- CMS currently make recommendations on a case by case basis
- FLUKA is used by ATLAS, CMS & LHCb for radiation background predictions - it seems to me we should be able to (collectively) make judgements about the performance and accuracy of FLUKA for predicting radiation backgrounds at LHC collider experiments

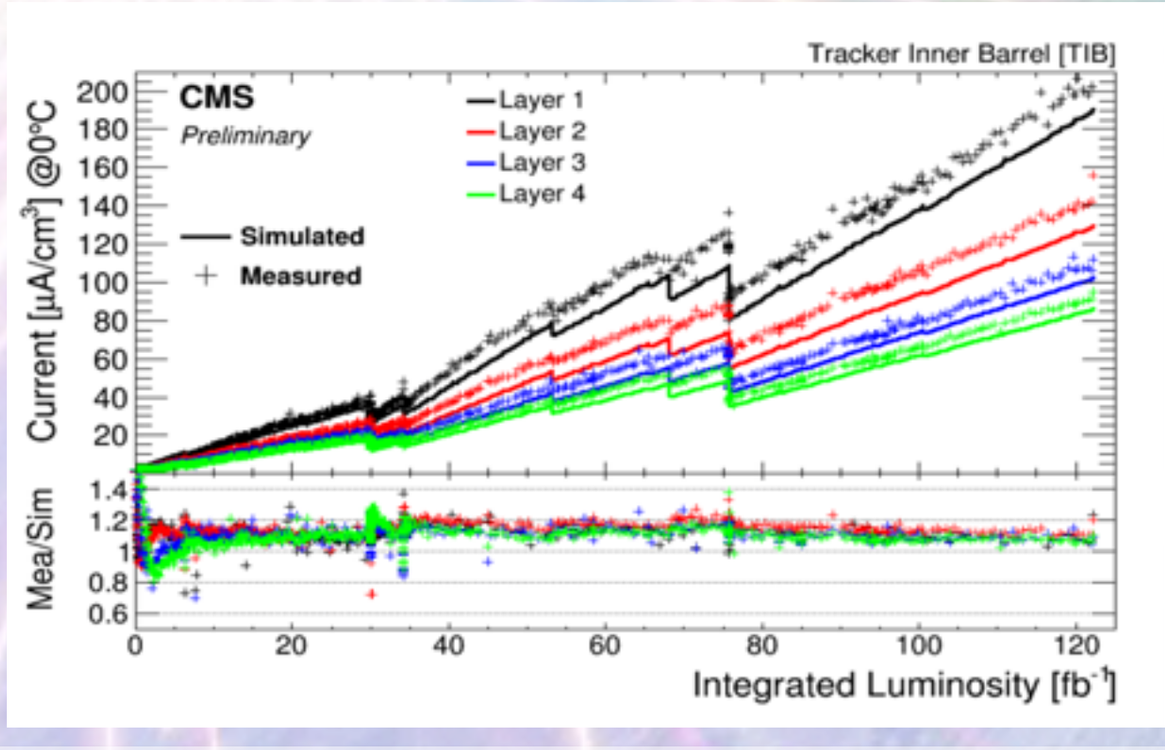
Some leakage current results from yesterday



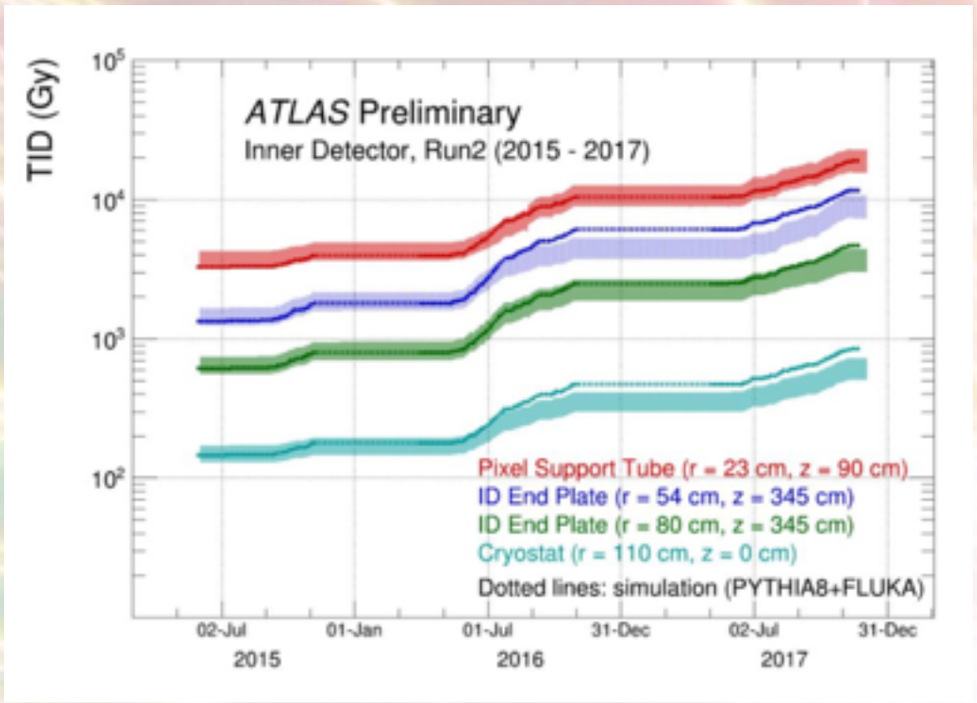


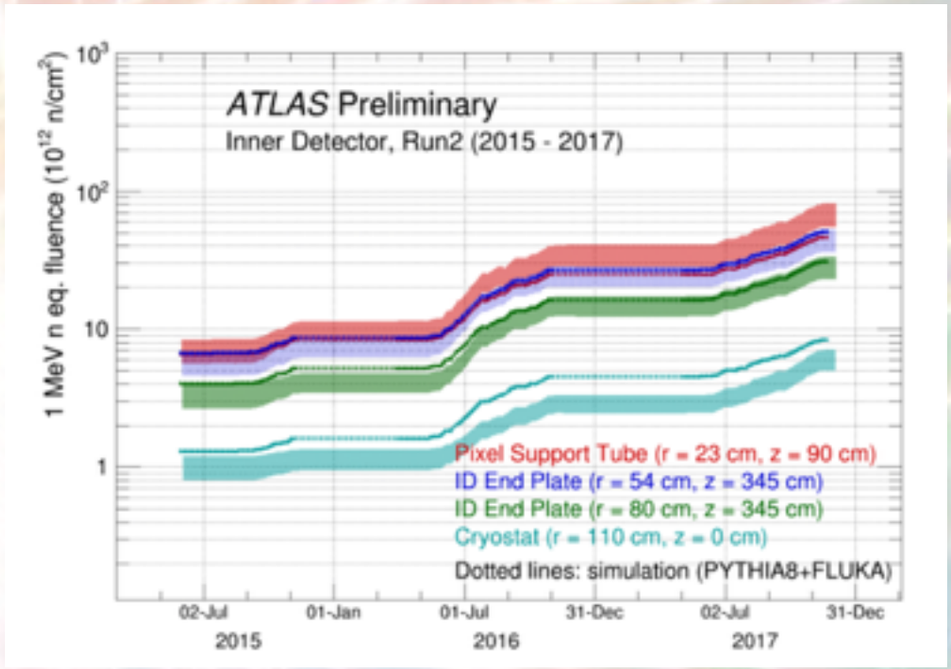






Some results from this morning





- In general reasonable agreement comparing experiment leakage current predictions and measurements (LHCb VELO, ATLAS & CMS strips)
- However most recent ATLAS pixel results need understanding
  - ➡ z-dependence of IBL
  - ➡ measurements significantly higher than simulation for B-layer, Layer-1, Layer-2
  - ➡ CMS pixel leakage current measurements would be a great cross check!
- A simulation safety factor 1.5 still seems reasonable to me for 1 MeV new fluence. The RadMon results suggest likewise for TID.