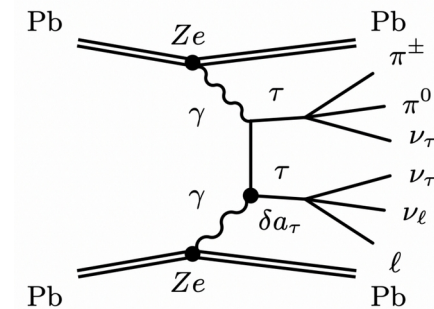


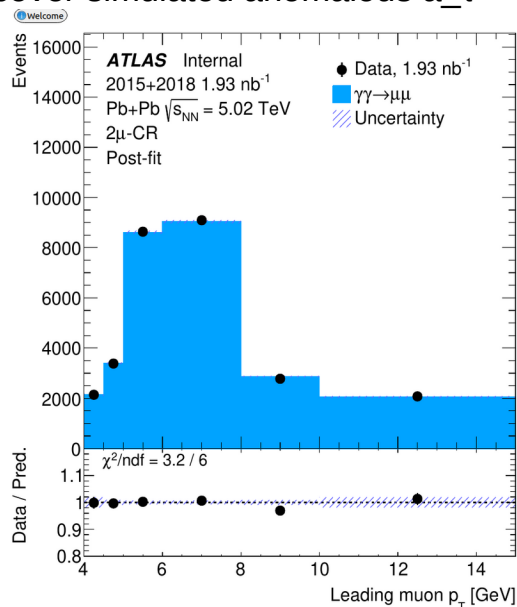
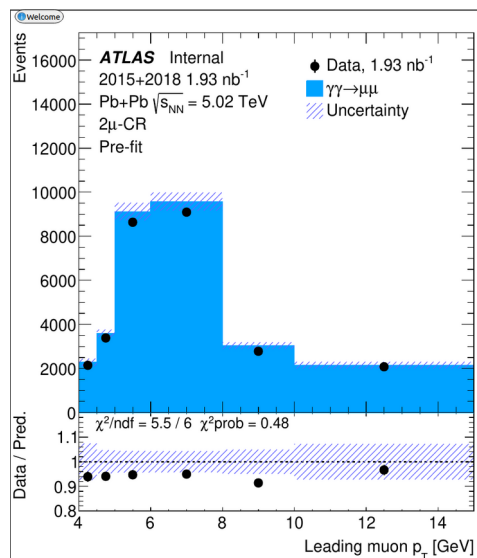
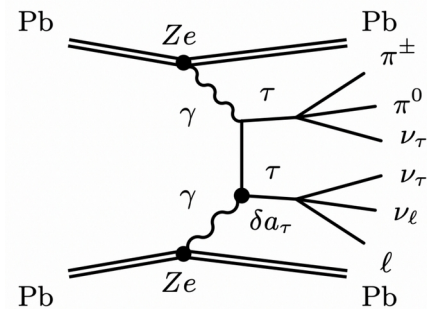
# SM-related recent work!

- Analysing tau-tau production in ultra-peripheral PbPb collisions
  - PbPb collisions have low integrated luminosity w.r.t. proton-proton, but
- Exclusively look for clean photon exchange to reconstruct di-tau rate and so  $a_\tau$ ,  $d_\tau$ 
  - the anomalous magnetic moment and electric dipole moments of tau lepton
  - both sensitive to BSM, more so than other leptons due to  $\tau$  mass
- 3 Signal Regions: 1M1T, 1M3T, 1M1E
- 1 Control Region 2M to derive a residual flux factor to apply to MC
  - previous treatment saw a large constraint in a two-point systematic – not physically motivated
- Performing detector-level likelihood scan for 2015+2018 data to fit  $a_\tau$ ,  $d_\tau$

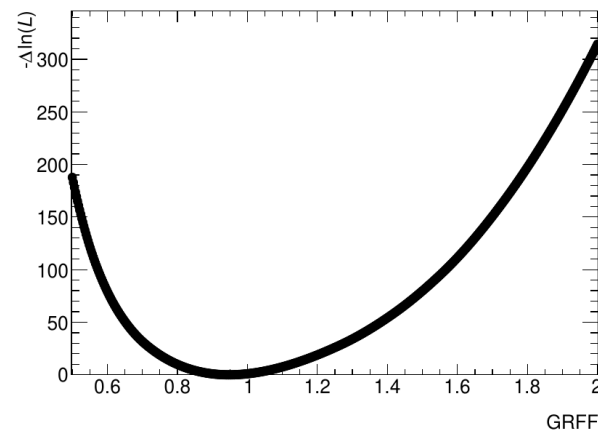
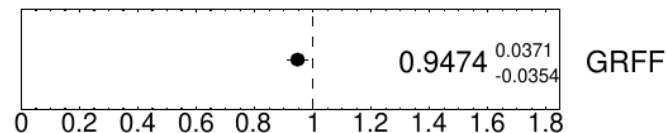


# 2018 + 2015 Heavy Ion Runs UPC

- Strategy includes two steps
  - Step one is fit of 2M-CR data to normalise MC to data yields
  - This accounts for photon flux, so can map well onto tautau MC
  - Comes from known unknown discrepancy between SuperChic and data
- After changing description of systematics, re-blind analysis for step two
  - Test of Asimov data
  - Also trying signal injection to recover simulated anomalous  $a_\tau$

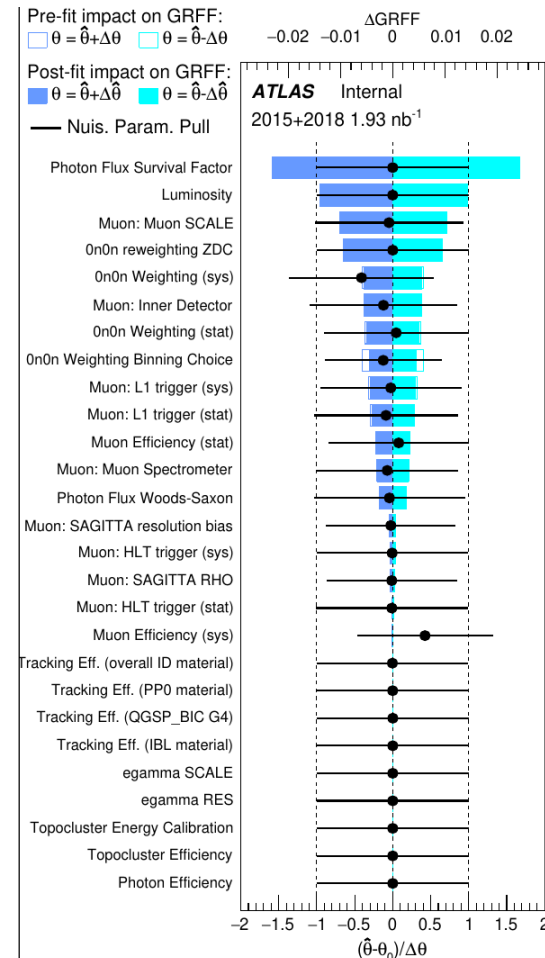
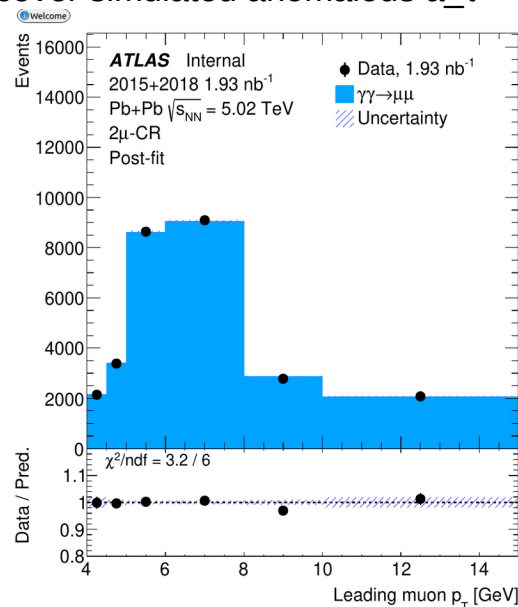
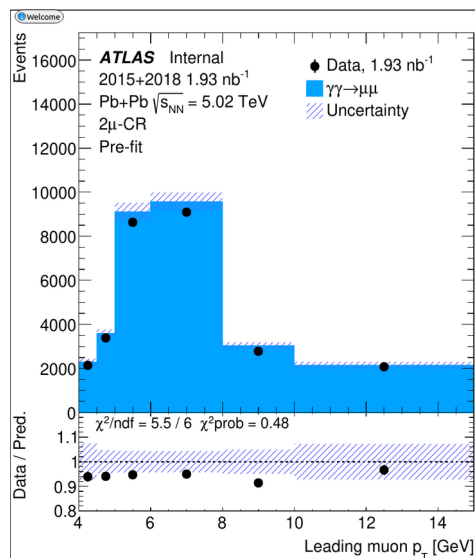


ATLAS Internal



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  - Double-minimum feature, as previously observed
  - Can look like improved one-sigma CL limits

