


# TileCal-IFIC

## *End of Year Meeting*

16/12/2025

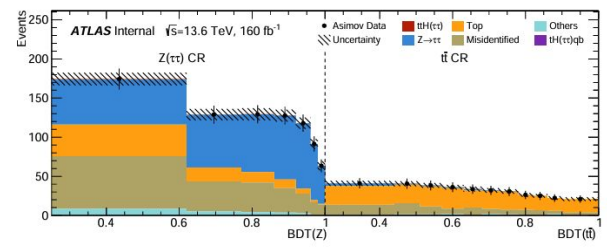
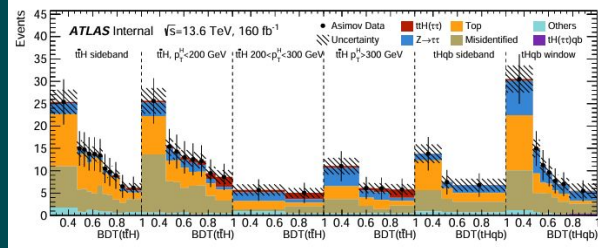
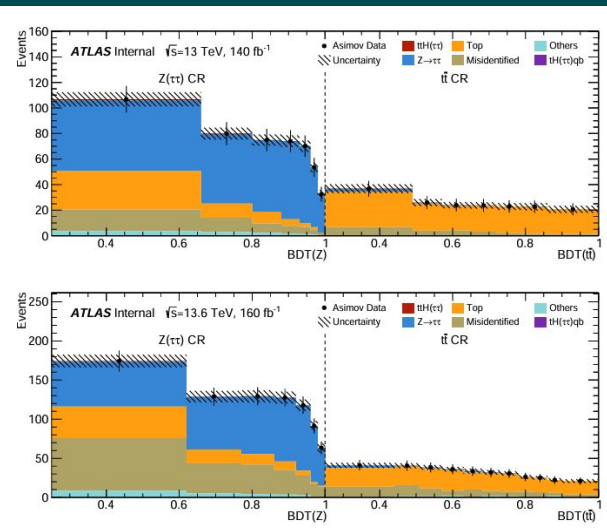
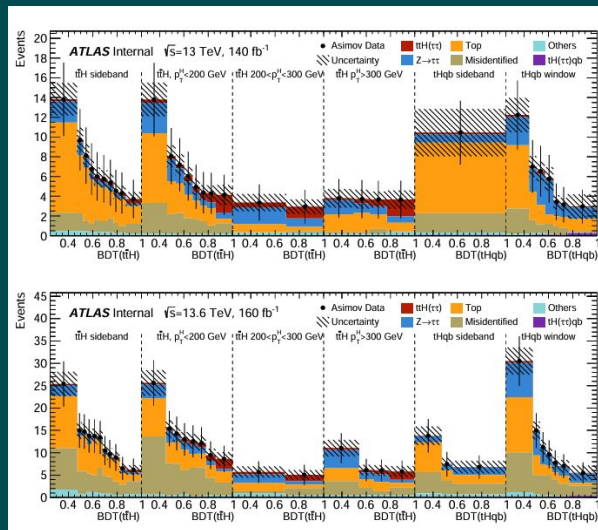


# During 2025...

- Most of the time devoted to the new **Run-2 + partial Run-3**  $tHqb + ttH, H \rightarrow \tau\tau$  analysis
  - I have continued contributing to Combined Performance tasks related to Electron Identification within the E/Gamma Group: Electron ID using a DNN
  - No shifts taken in the ACR this year... instead:
    - Lot of teaching in the UV
    - **Written and submitted the Ph.D thesis**
      - Already in public exposition
- 

# $(tHqb + ttH) H \rightarrow \tau\tau$ analysis

- MVA training (BDT) updated with the new datasets and optimized with new variables enhancing the separation among both signals,  $tHqb$  &  $ttH$ , and main backgrounds,  $Z \rightarrow \tau\tau$  and  $tt$ 
  - Definition of signal and control regions out of the BDT scores
  - Careful management of inputs for the statistical fit
- Reduced person-power analysis: lot of (nice) work done by Morvan, Ximo and I
  - Internal note: [CDS link](#)
  - EB request: Friday 12 Dec in [Taus | Leptons meeting](#)
  - Few action items being already addressed
- Slowly stepping down...  
Happy that Morvan joined the team!!

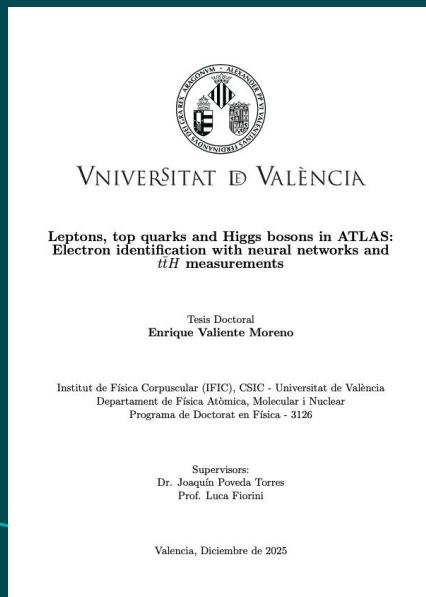


# E/Gamma CP contributions: Electron Identification using a Deep Neural Network

- Run-2 R.22 DNN menu for Electron Identification released
  - Paper in preparation summarizing these results: **ANA-EGAM-2025-01-INT1**
- Presentation given in the latest E/Gamma Workshop at CERN:
  - Plans for Electron ID tuning and scale factor measurements in Run-3
- Karla Figueredo (new Ph.D student) taking over the DNN for electron identification, facing new challenges proposed in the last years:
  - New definitions of signals and backgrounds classes
  - Segmentation: train different DNN with similar setups targeting different features of the electron:
    - So far: **electron / no electron + prompt / displaced**

# AOB...

- Last Ph.D trip to Lago di Como last July...
  - Attended Advanced Artificial Intelligence for Precision High Energy Physics
- Most part of the summer was devoted to:





Thanks for your attention

Happy  
Christmas!!