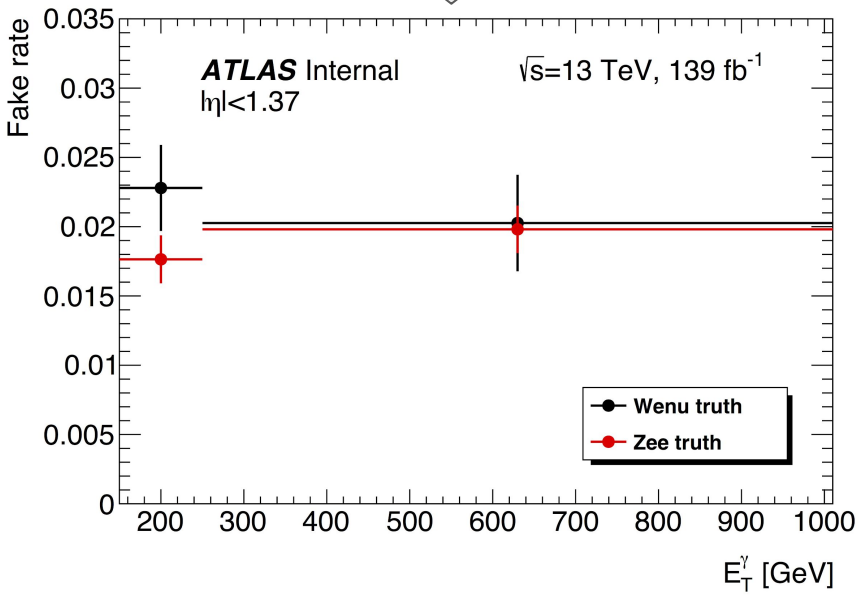
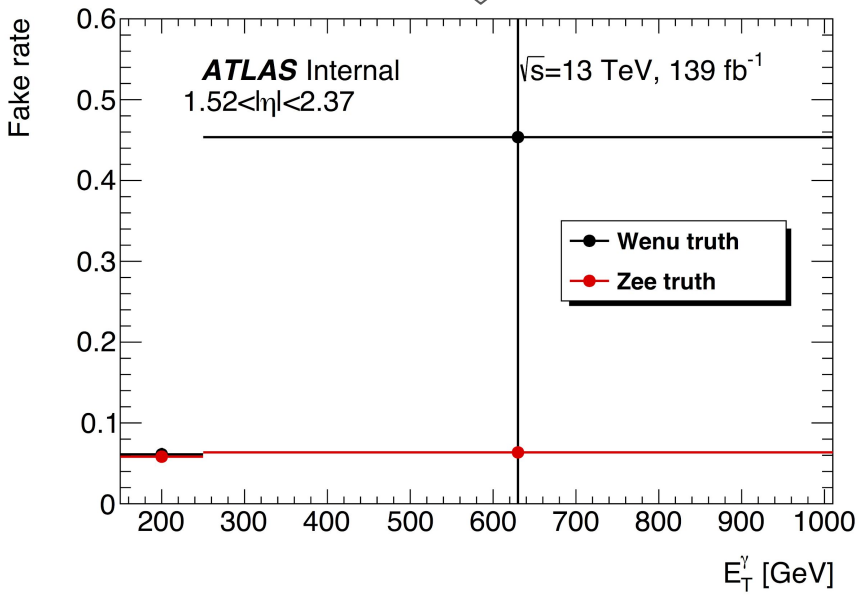
L518 Why there is such a big “real fake rate” difference between electrons faking photons in W(ev) and Z(ee) MC. From which region/bin is the 29% is coming? Could it be lack of stat?

=>It is coming from central eta region with pT<250 GeV, where the relative stat. uncertainties on “real fake-rate” are 14% for Wenu and 10% for Zee. Unfortunately Wenu and Zee MC are quite limited statistically for our phase space. This can be seen from the Table 16 with fake rates used for systematics estimation, which is added now the Supp. Note, and also from the following slides. Though systematics on fake-rate itself is quite large, it results in 7.2% Zγ-inclusive region (or 5.6% in SR) on total background estimation.

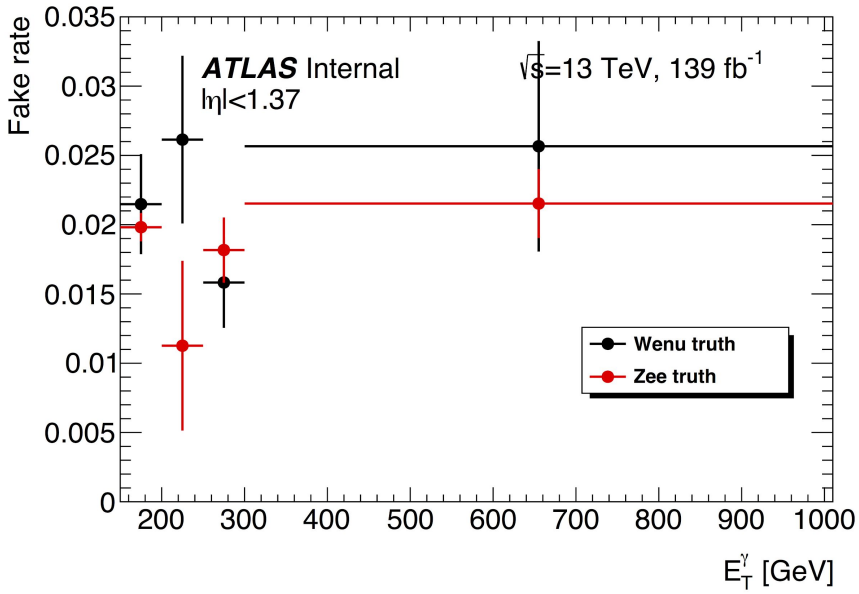
central

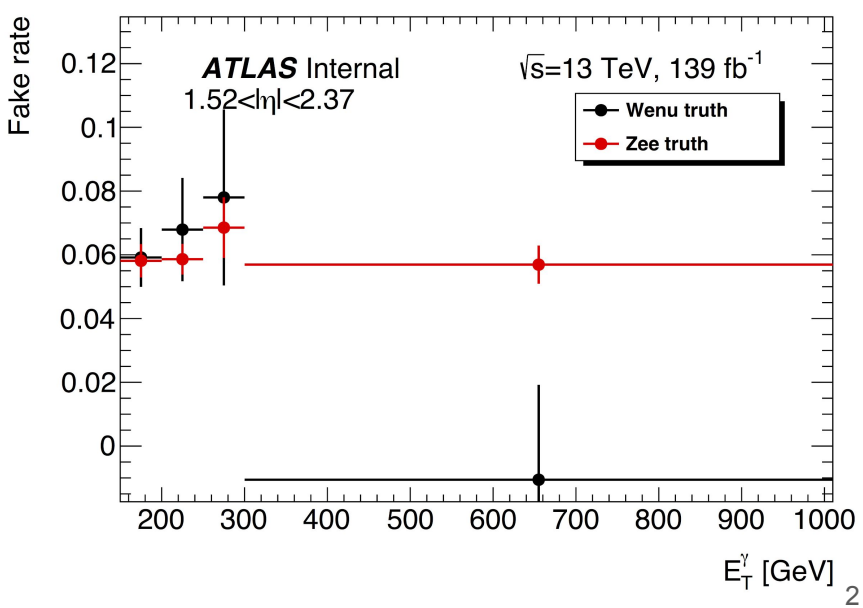


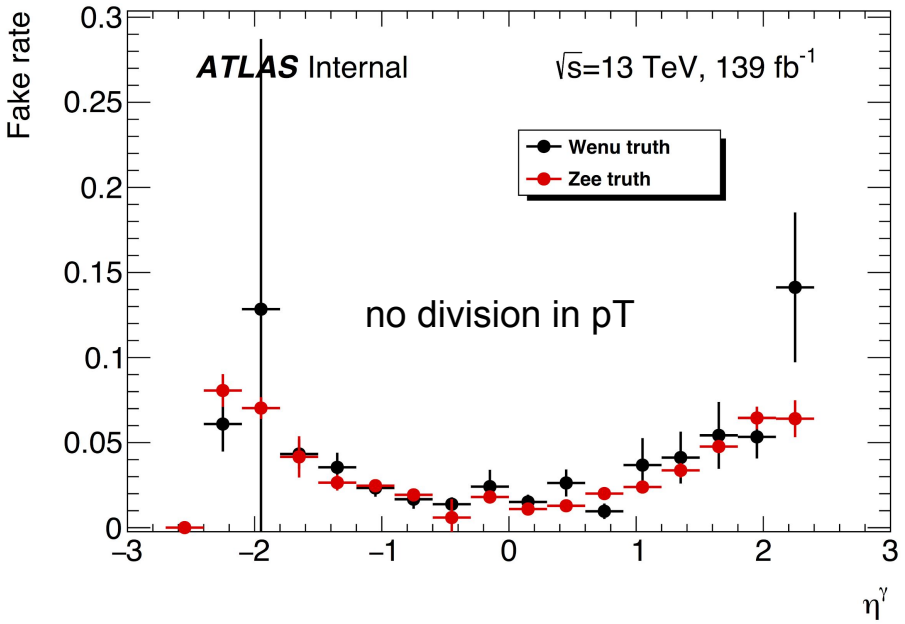
forward

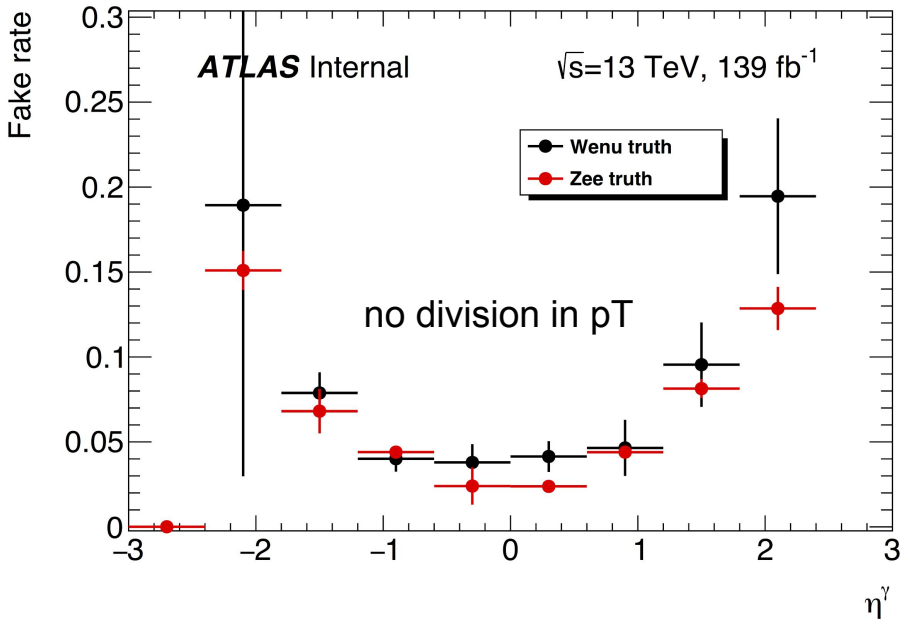


smaller binning

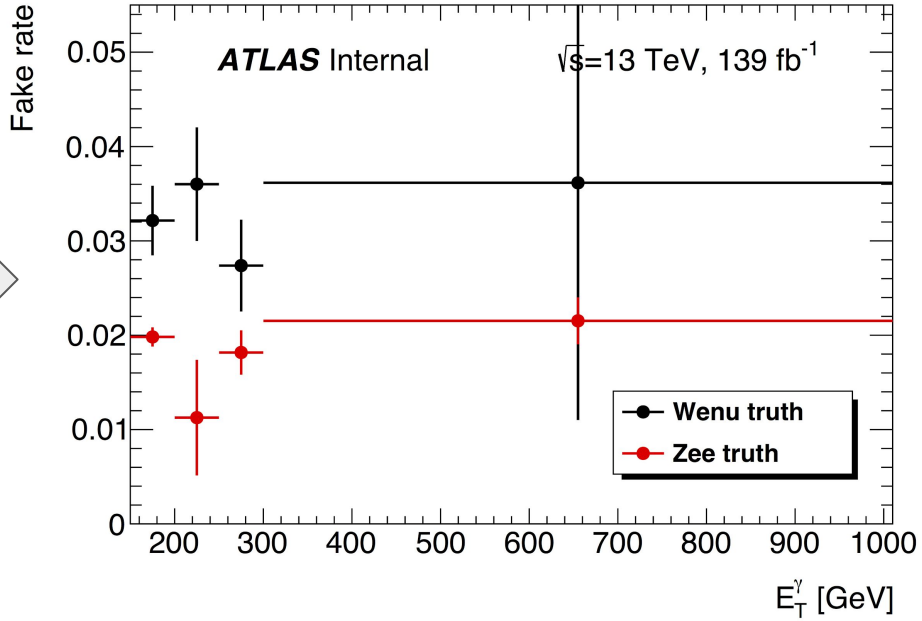




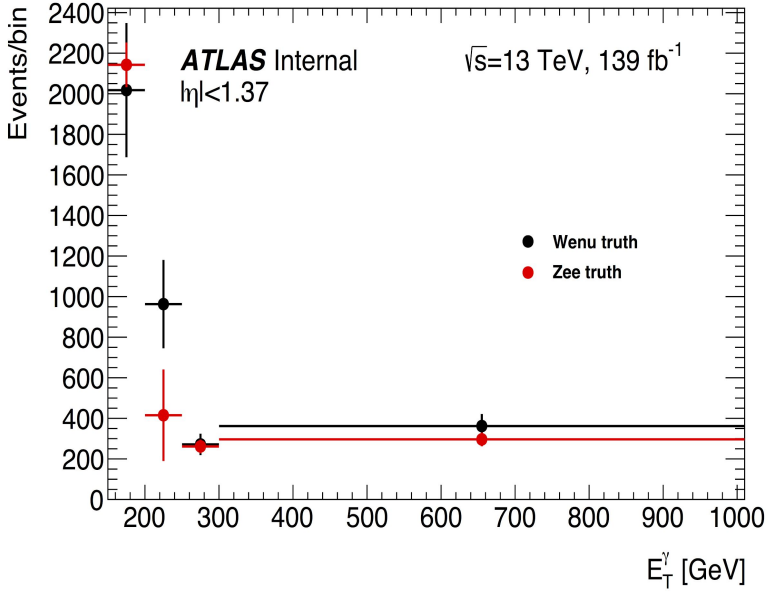




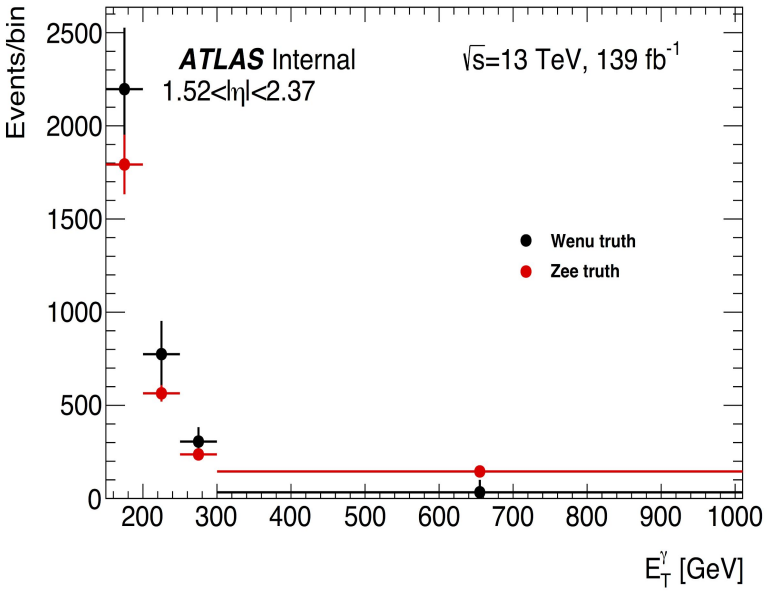
central and
forward regions
combined

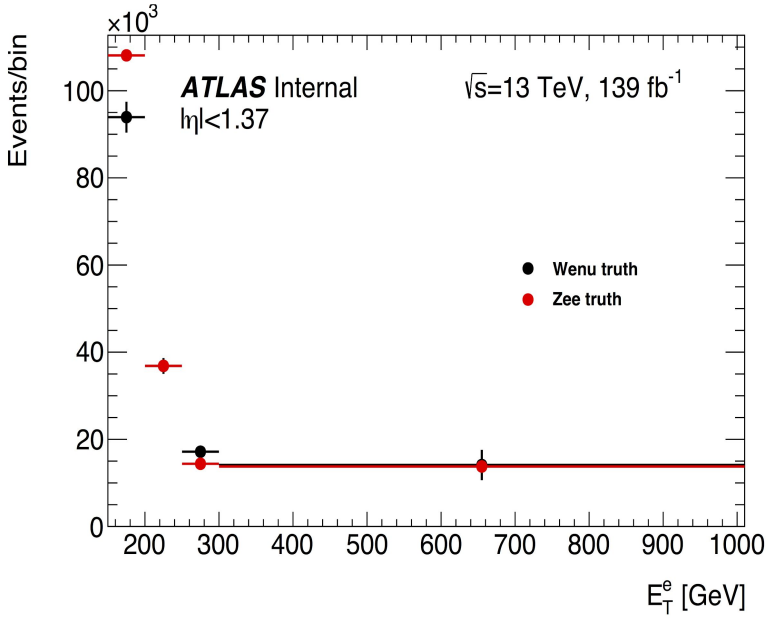


Distributions on probe-particle pT

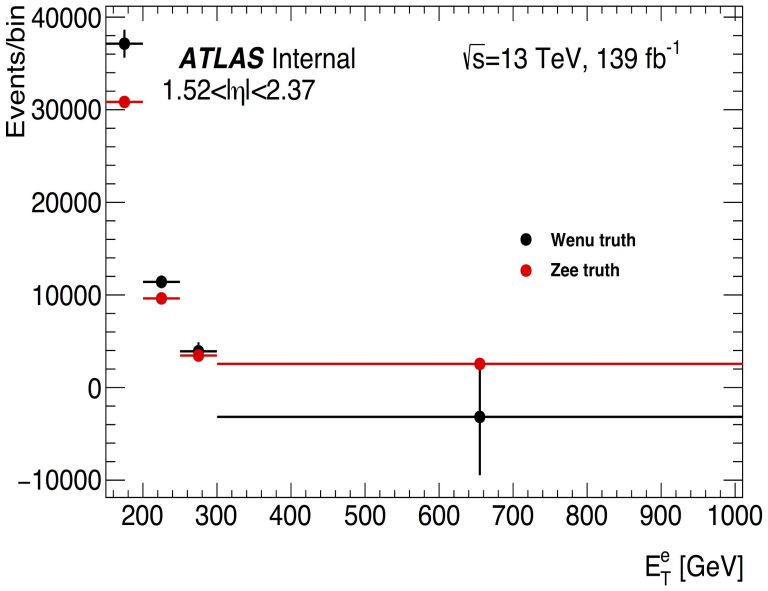


misidentified photon





electron



Distributions on probe-particle eta