

Weekly report

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Need to update the note : Spurious Signal

- better spurious signal when use high $pT_{\gamma\gamma}$ cut

ExpPoly2	$pT_{\gamma\gamma} \geq 0$	$pT_{\gamma\gamma} \geq 50$	$pT_{\gamma\gamma} \geq 80$	$pT_{\gamma\gamma} \geq 100$
N_{SS}	-3.12(fail)	-1.58(fail)	-0.77(fail)	-0.40(pass)

2x2D SB method to measure background decomposition

- here only consider $\gamma\gamma, \gamma - jet, jet - jet$ background

Component	$pT_{\gamma\gamma} < 0$	$pT_{\gamma\gamma} < 80$
$\gamma\gamma$	146.35	52.26
$\gamma - jet$	6.25	4.14
$jet - \gamma$	7.37	2.81
jet-jet	5.66	0.57
purity	0.88	0.87

Fake leptons : jet \rightarrow electron

- hard to find a fake-lepton dominant CR
- SR is medium ID and loose isolation, so if we want to find a fake dominant CR, we need loose but not tight lepton or non-isolated leptons, which are both not saved in current sample...

Fake photon : electron \rightarrow photon

- direct estimation from $Z\gamma$ MC in VH analysis
- study the $M_{e\gamma}$ spectrum by data driven method — ongoing.