

CMS ECAL UPGRADE AGING/LONGEVITY STUDIES

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- ▶ The detector is aging.
- ▶ The luminosity is increasing.
- ▶ Curious as to how well it will work under these conditions.

GOALS

AND STEPS INVOLVED

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SIMULATION
STUDY

BACKGROUND

GOALS

SIGNAL/BACKGROUND

dR PLOTS

dR PLOTS

ϕ PLOTS

ϕ PLOTS

η PLOTS

η PLOTS

PT PLOTS

PT PLOTS

R9 PLOTS

R9 PLOTS

$\sigma_{i\eta i\eta}$ PLOTS

PT PLOTS

- ▶ Use $H \rightarrow \gamma\gamma$ decay to look at high pile up and aging effects.
- ▶ Use some kinematic variables to check data
- ▶ Check accuracy of shape variables to use for cuts

SEPARATING SIGNAL AND BACKGROUND

THE DR CUT

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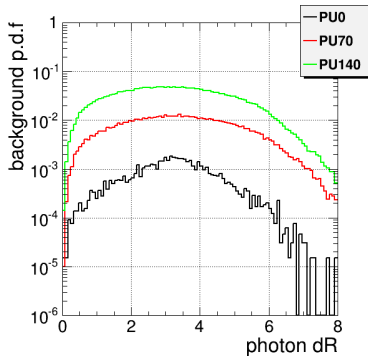
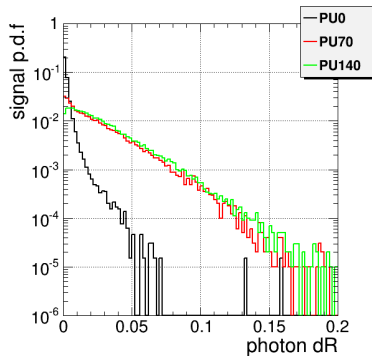
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1. Separate out generated photons from data.
2. Find the closest reconstructed photon in $\eta\phi$ -space
3. If there are more than one within the range (I used $dR < 0.2$), choose the one with closest energy
4. Put matched photon in signal, the rest in background

DR PLOTS

AGE 0



*Example plots, data not accurate yet!

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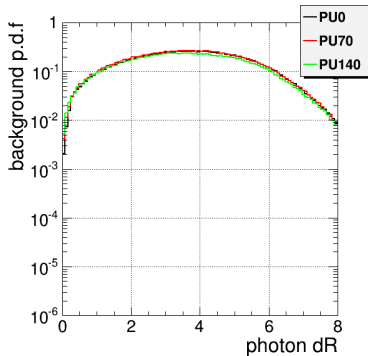
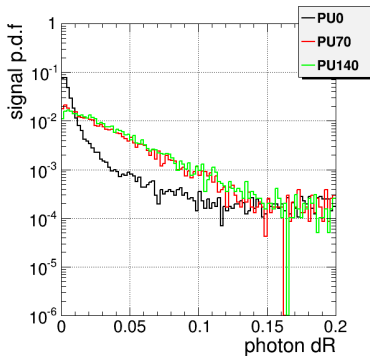
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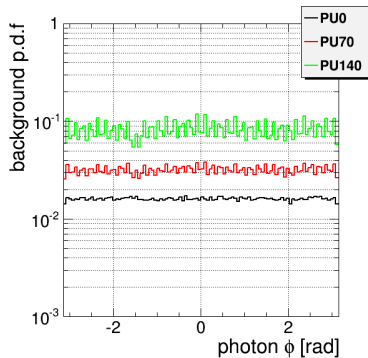
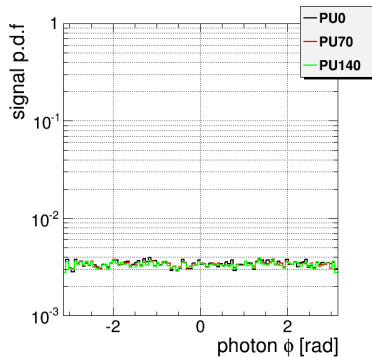
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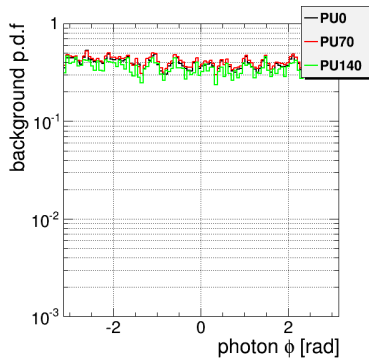
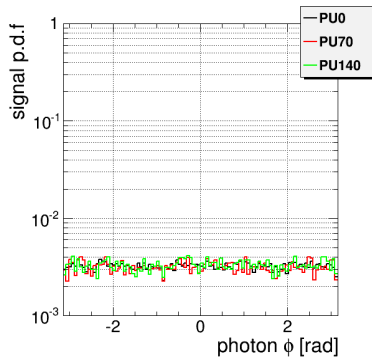
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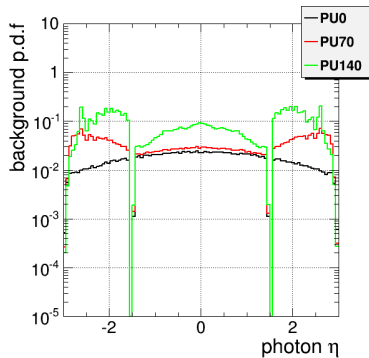
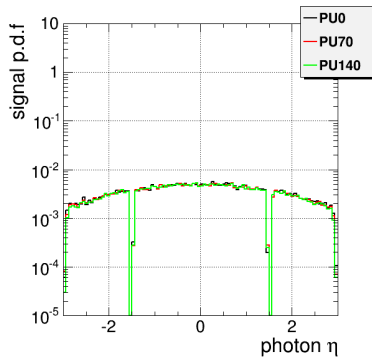
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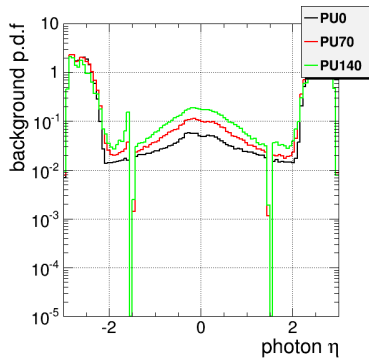
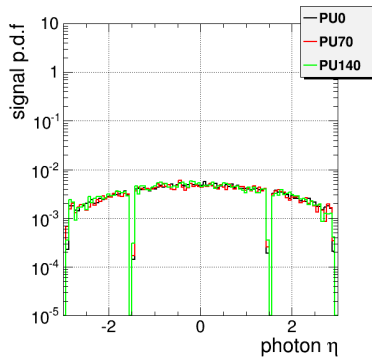
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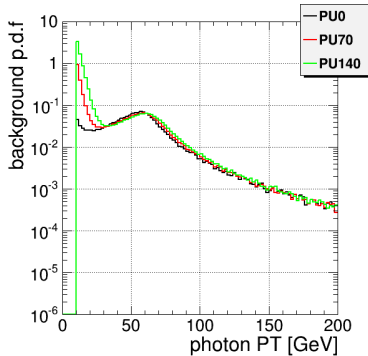
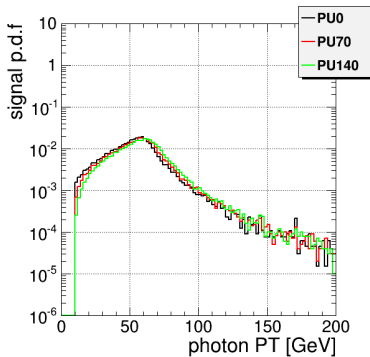
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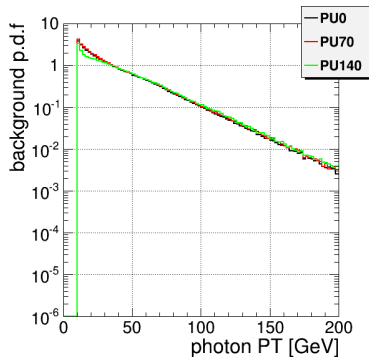
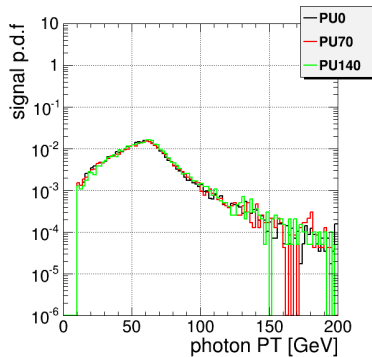
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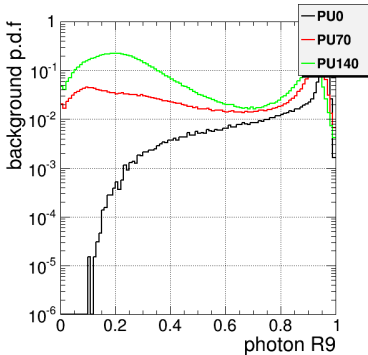
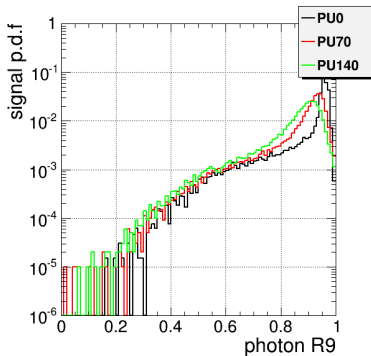
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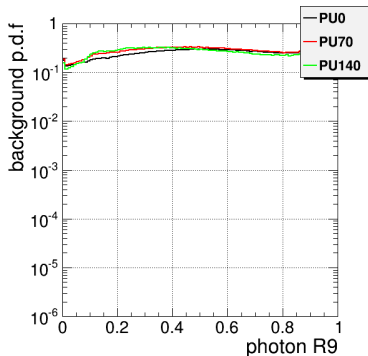
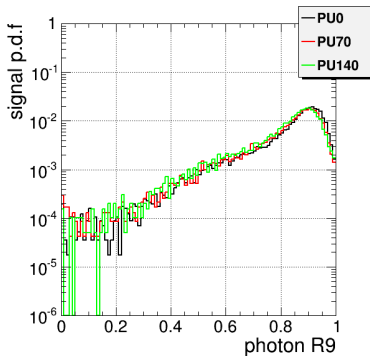
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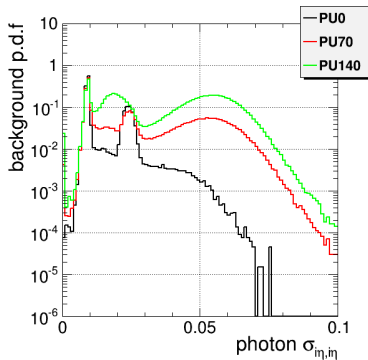
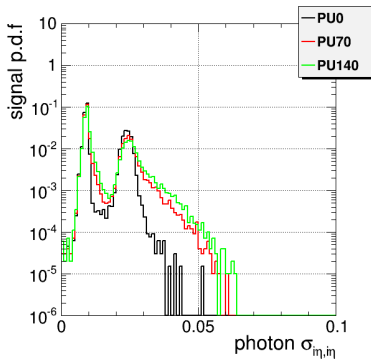
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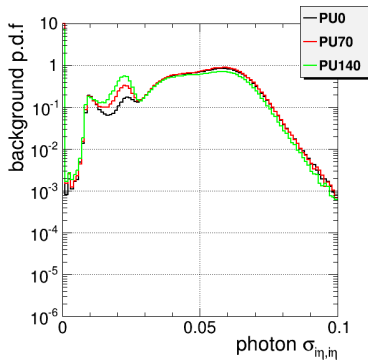
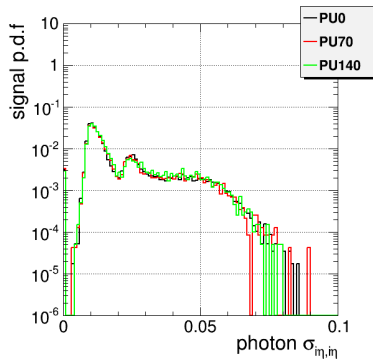


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