



$$\omega \rightarrow \pi^+ \pi^+ \pi^0, \pi^0 \rightarrow \gamma(\gamma)$$

- Kinfite CL (vertex & MM=0) > 0.001
- Reconstructed photon > 300 MeV
- Recoil against p selection below

Recoil against proton (GeV)



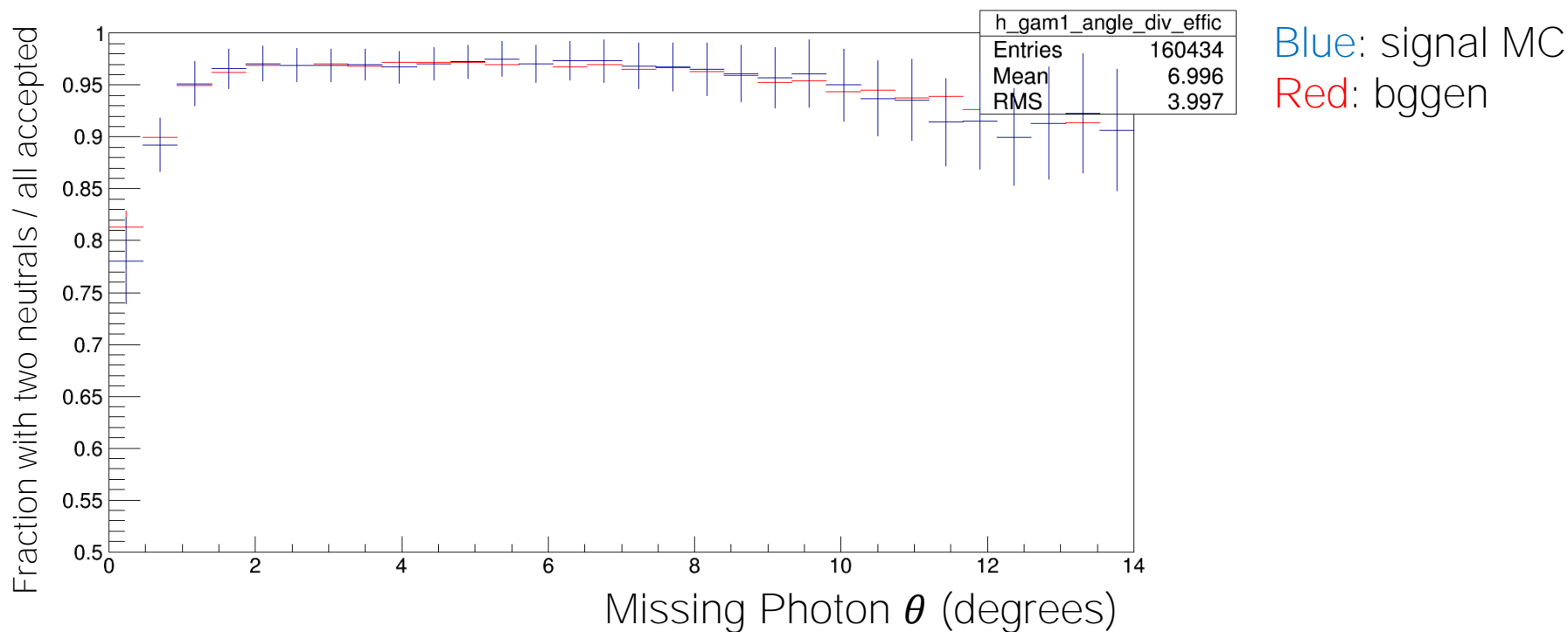
Fraction With Additional Neutral Shower

- Look at fraction of events that have two or more neutral showers
- Study in bins of θ for missing photon
- Fast and loose metric-
 - No requirement that $\gamma\gamma$ inv. add up to π^0 mass
 - Definitely not the final word on efficiencies...



No Trigger Simulation: Signal MC vs BGGEN

- Signal MC sample: generated in 2016, genr8, beam E=9 GeV
- BGGEN sample: sim1_2_1 to compare to 2016 data



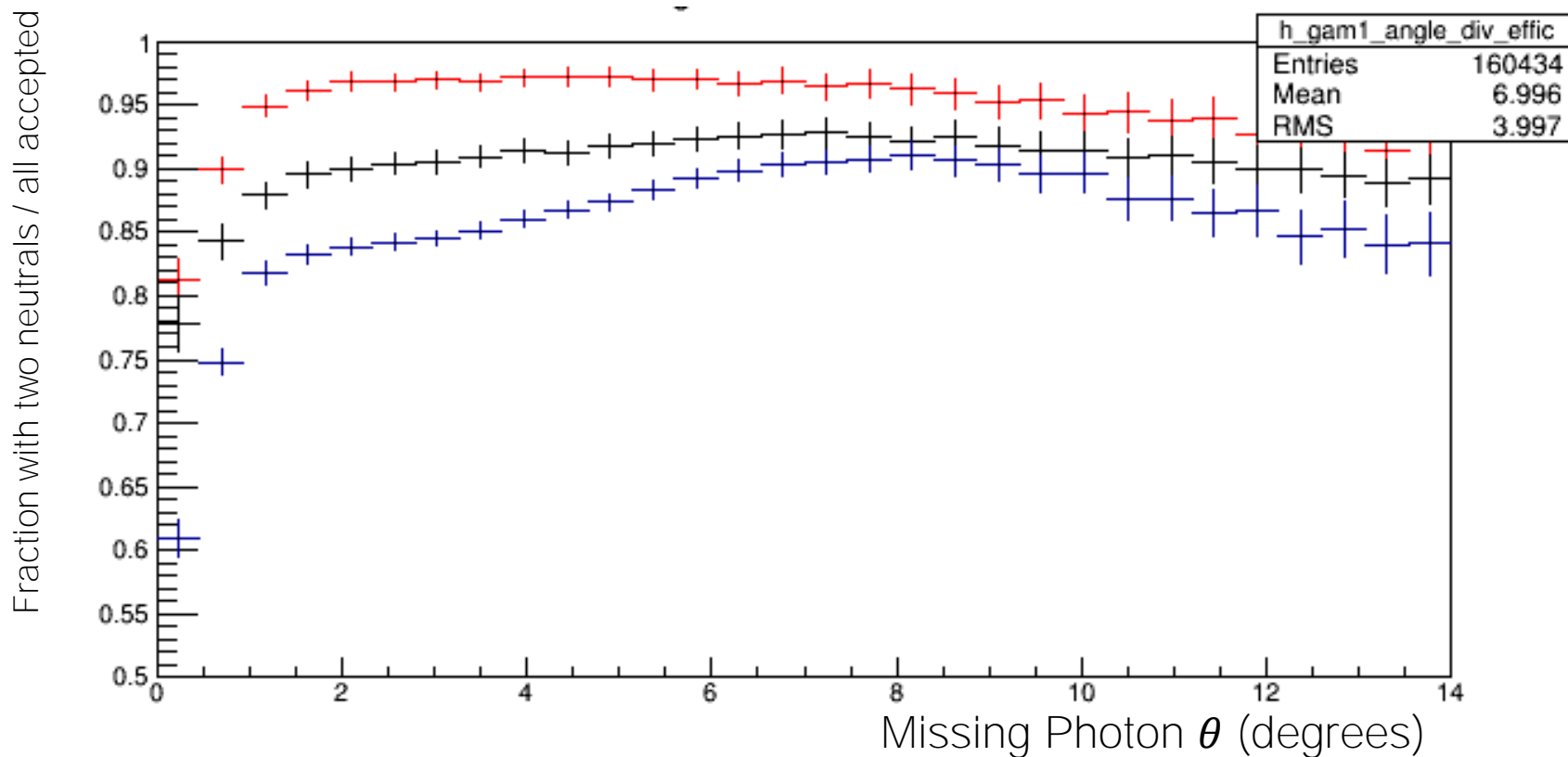


Adding Trigger Simulation

Blue: signal MC w/ trigger simulation (provided by Sean)

Black: 2016 data “golden runs”

Red: bggen (sim1_2_1)



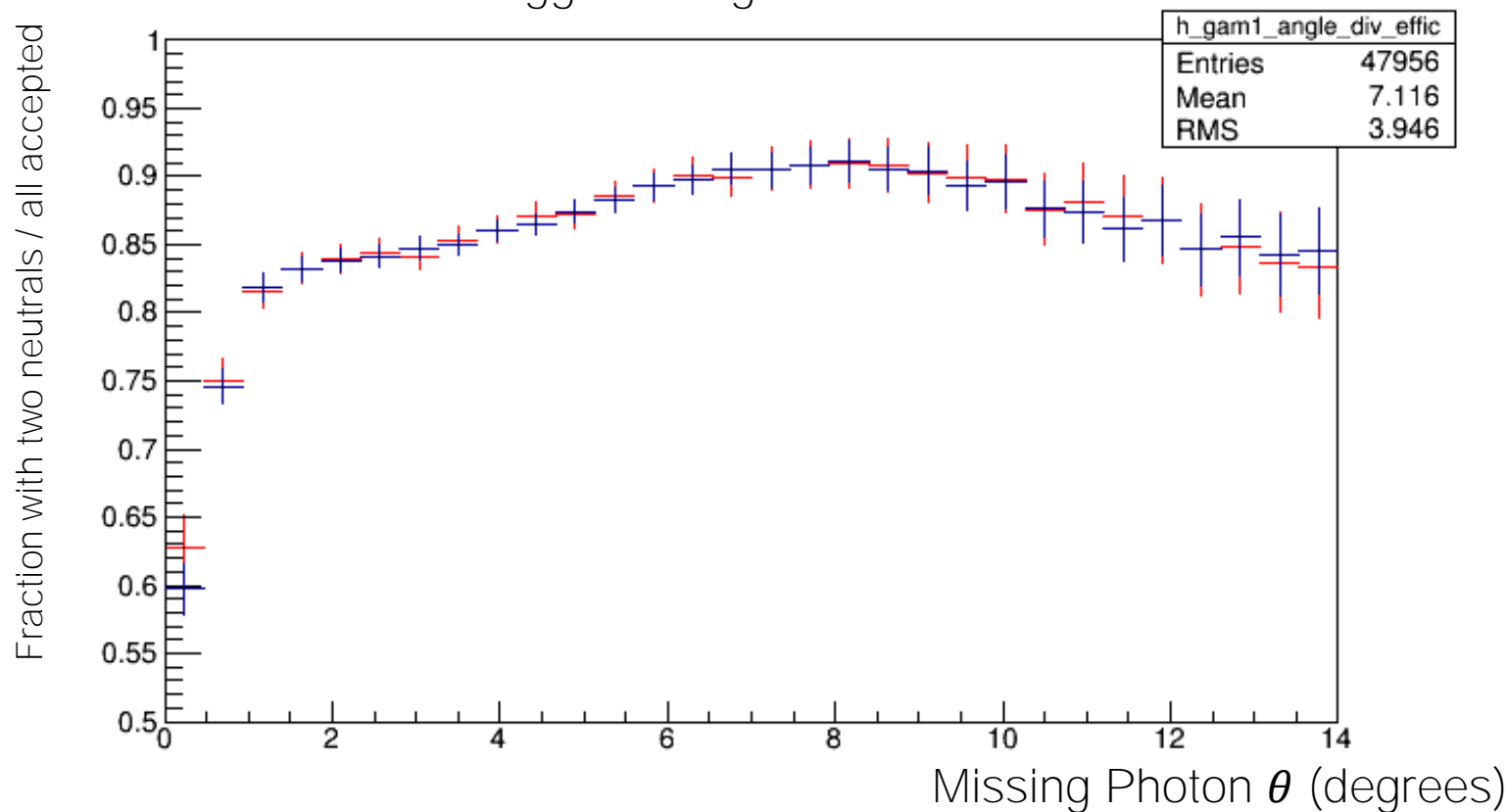


Signal MC with/without Random Trigger

Both: signal MC w/ trigger simulation (provided by Sean)

Blue: no random trigger

Red: random trigger background added





Backup: Event Selection (Detailed)

- No extra tracks
- Reconstructed photon > 500 MeV
- All tracks:
 - $48 \text{ cm} < Z\text{-vertex} < 78 \text{ cm}$
 - $\text{DOCA} < 1 \text{ cm}$
- PID timing:
 - $\Delta t < 1 \text{ ns TOF}$
 - $\Delta t < 3 \text{ ns BCAL}$
 - $\Delta t < 2.5 \text{ ns FCAL}$
- Kinematic Fitting:
 - Vertex fit
 - Constraint requiring missing (photon) mass = 0
 - 0.001 fiducial CL cut
- 12 max unused showers in event (for coding simplicity, cuts maybe 1 in 100,000 events)