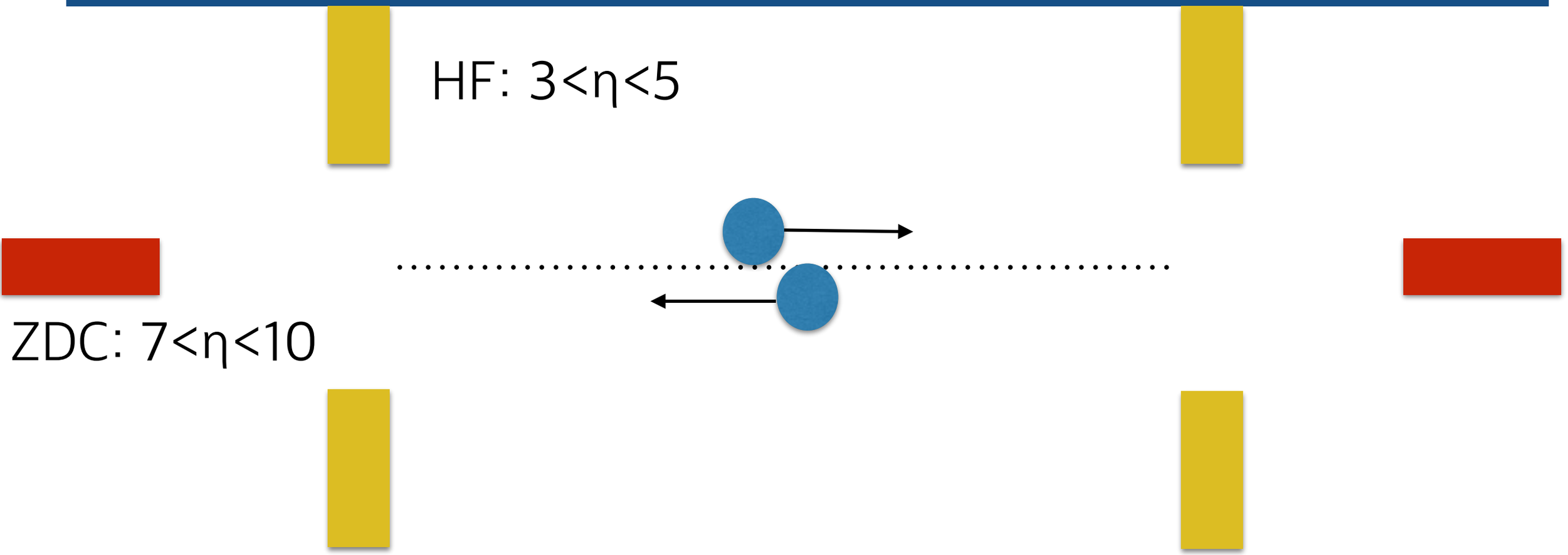
ZDC energy sum relation of UPC

KiSoo Lee

previously



- UPC rarely produce high pt particles
- UPC expected to occur in low HF energy sum event and it really does
- UPC expected to occur in high ZDC energy sum event

ZDC

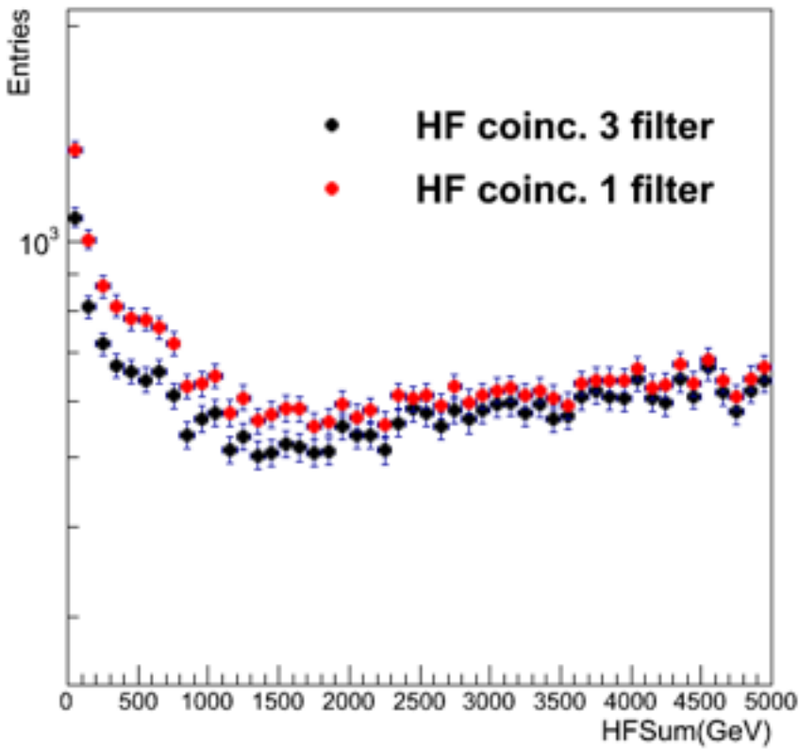
- ZDC measure coincidence rate of forward-backward neutron signals emitted in the decay of the Coulomb excited colliding ions

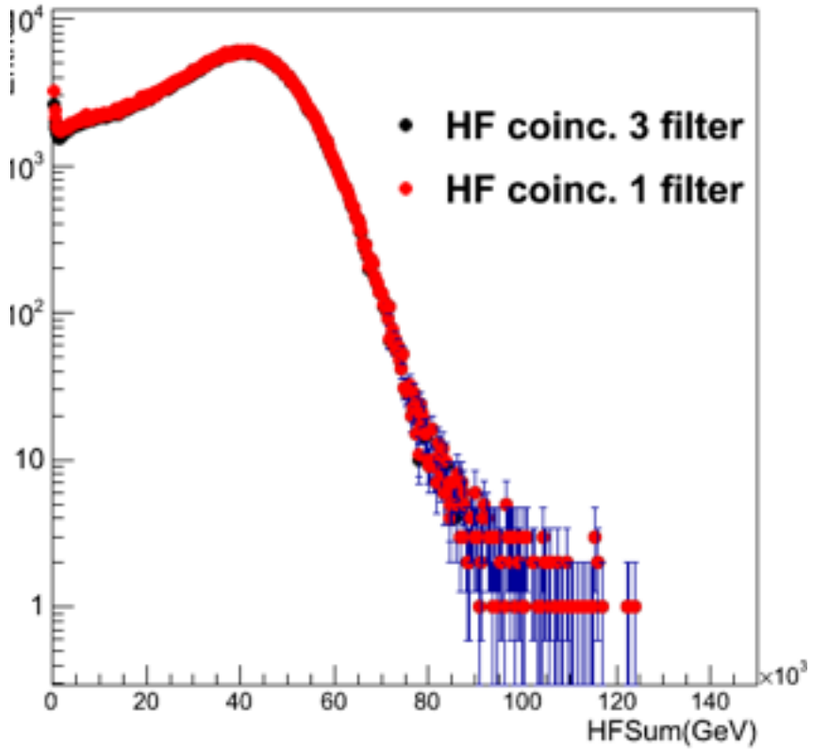
- The ZDCs have been proven at RHIC to be of paramount importance for triggering and tagging UPC events by measuring the forward neutrons issuing from the Coulomb-excited nucleus dissociation

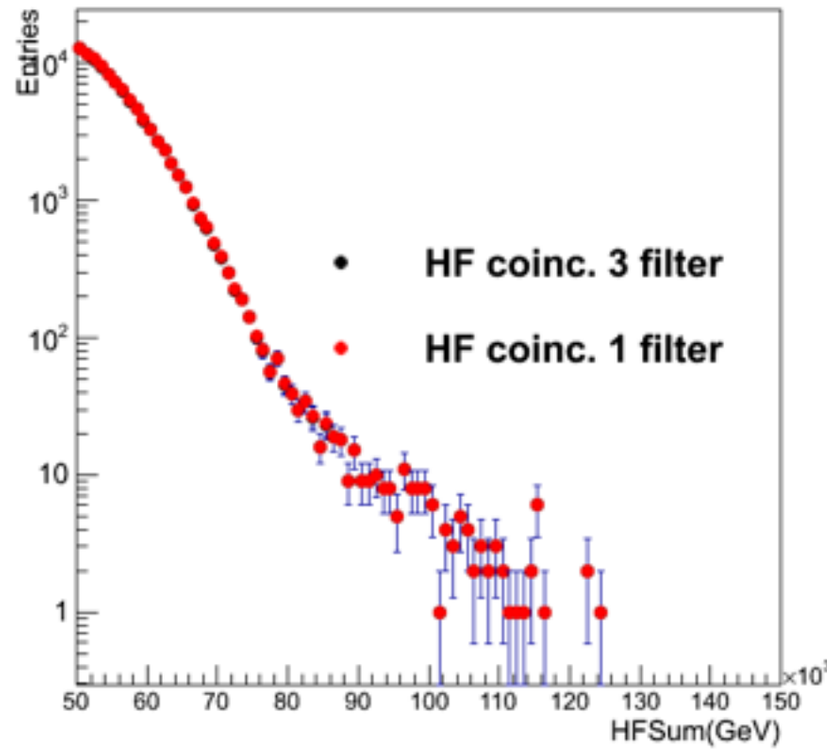
- Because the ZDCs are sensitive to “spectator” neutrons, they are important detectors for measurements of reaction centrality

http://arxiv.org/pdf/nucl-ex/0608052.pdf

Minimum Bias Events

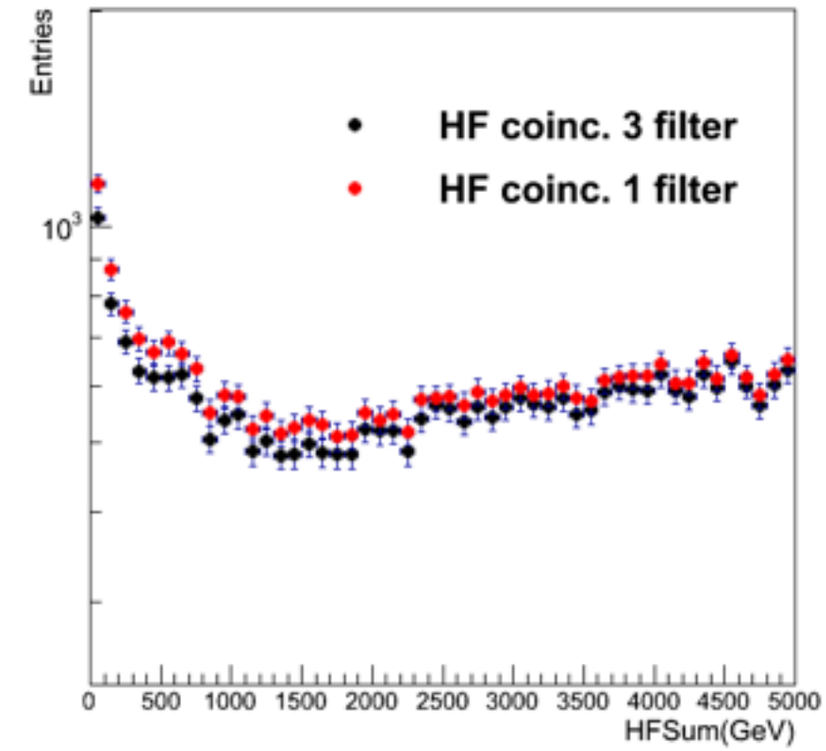


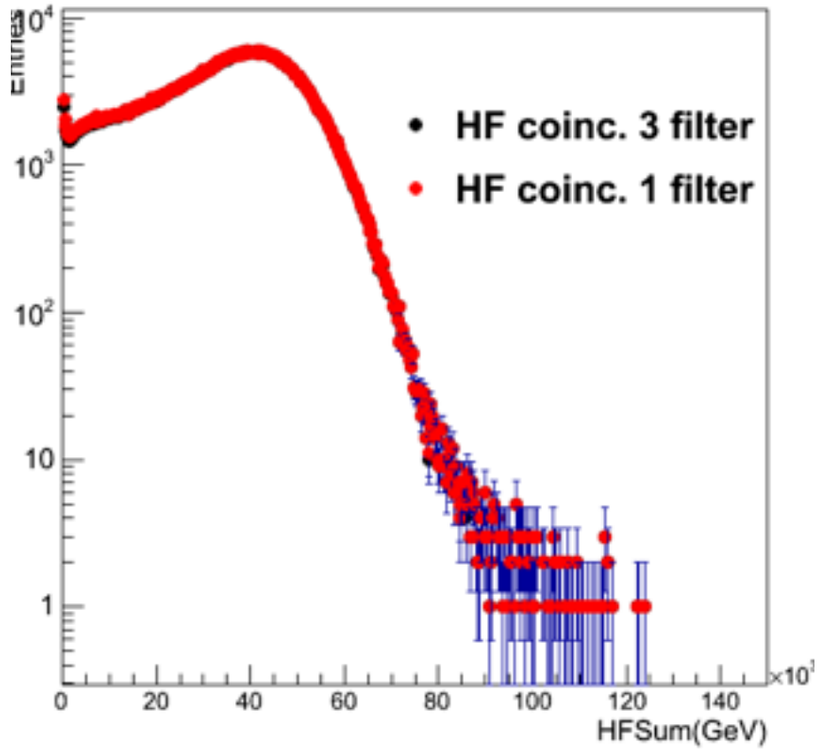


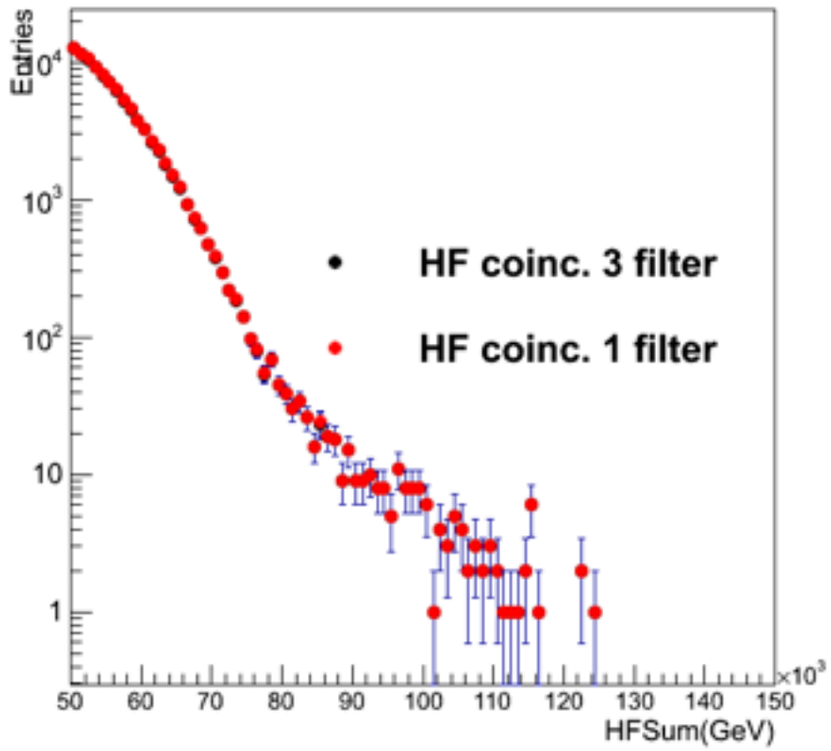


- BSC cut is always applied
- 3 HF towers cut result is slightly lower than 1HF towers cut
- unlike to expectation, UPC events occur in low energy ZDC sum

primary vertex filter

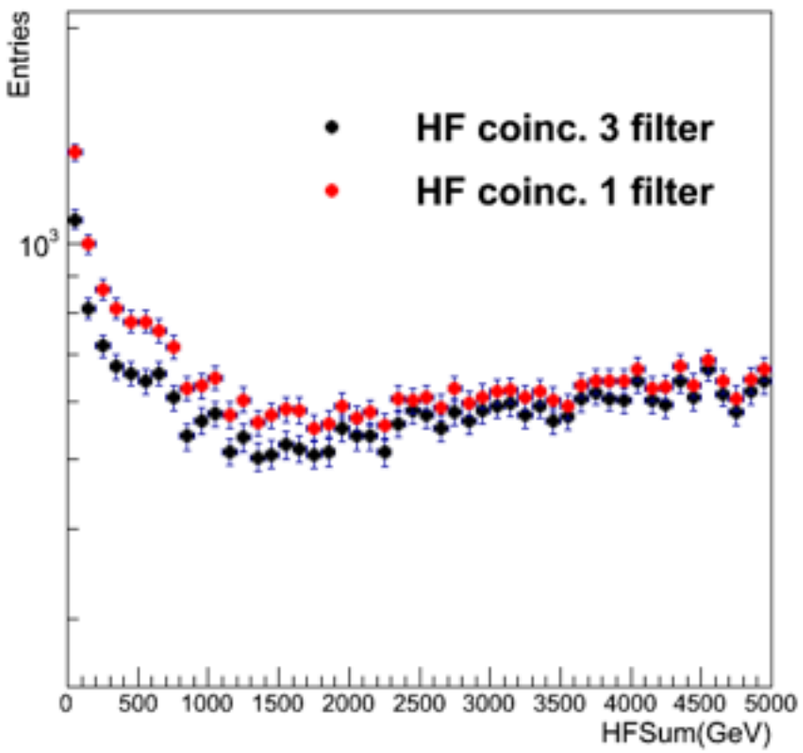


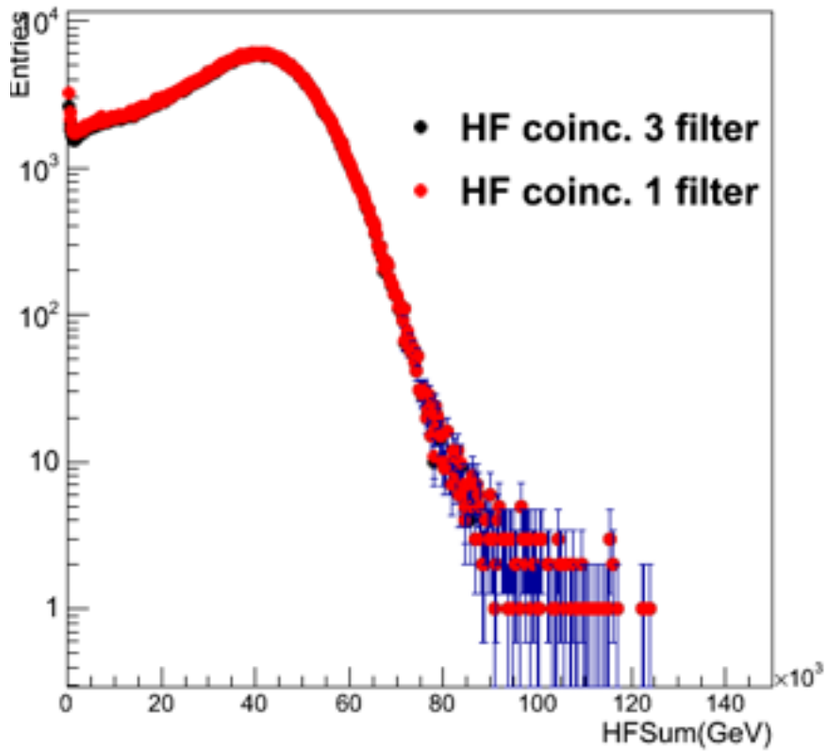


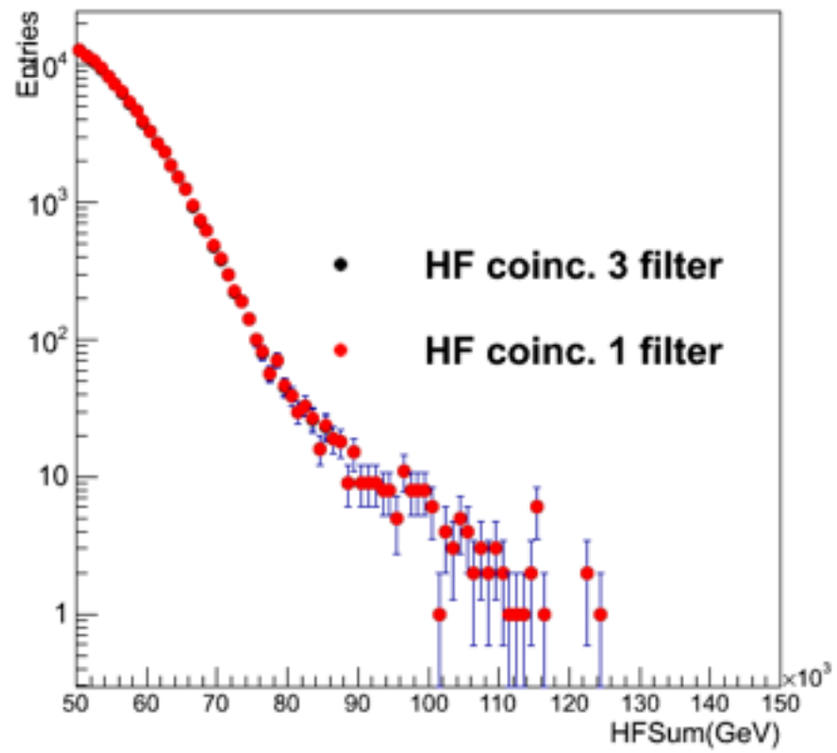


- primary vertex filter applied
- 3 HF towers cut result is slightly lower than 1HF towers cut

hlt pixel cluster shape filter

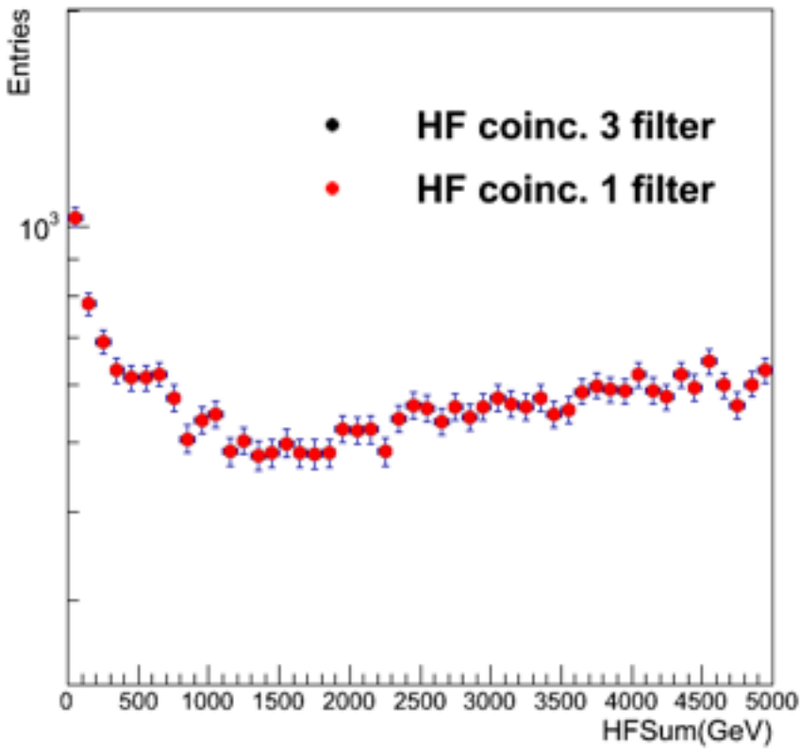


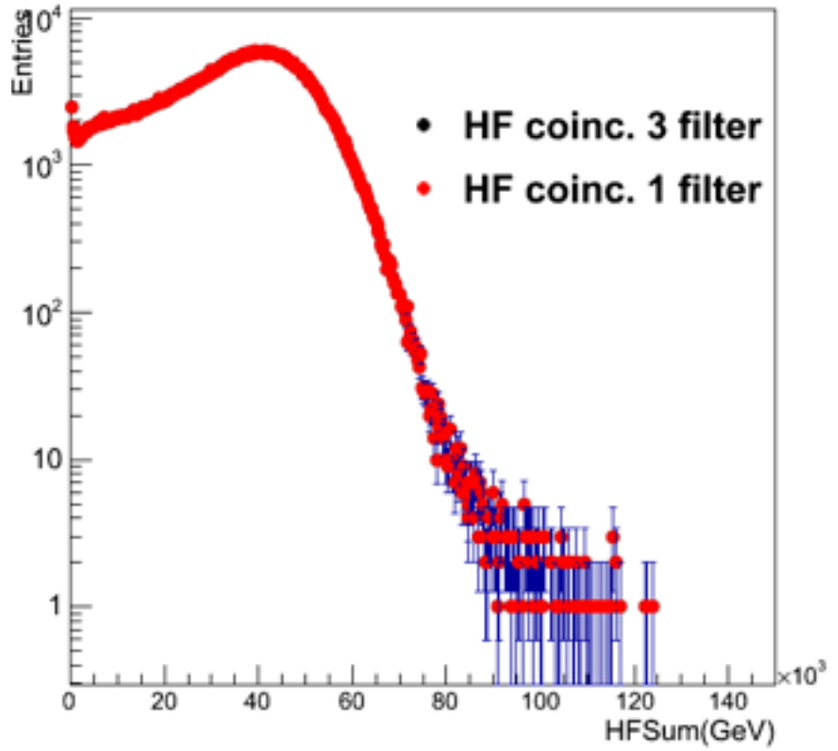


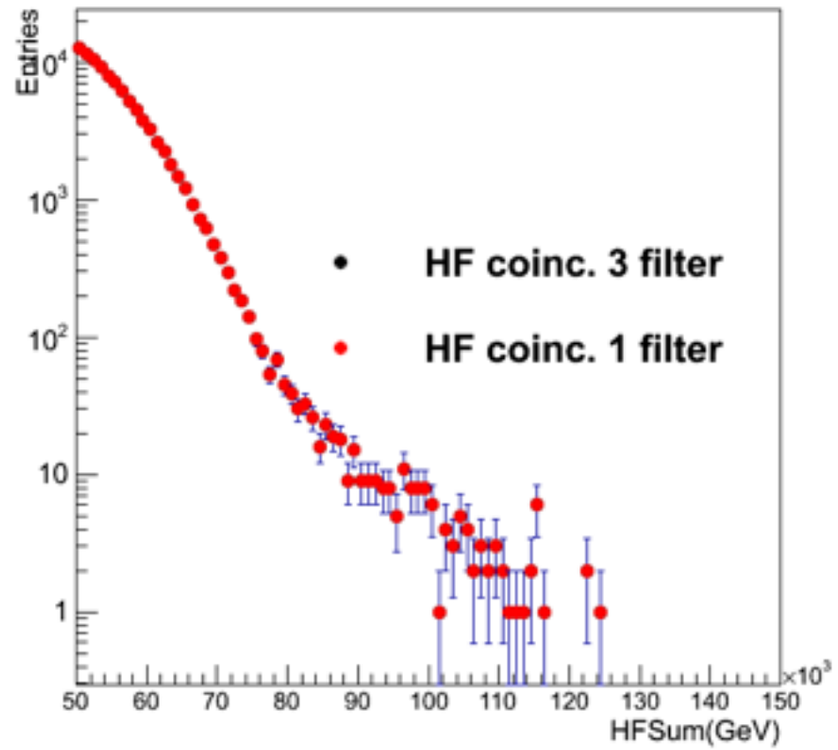


- hlt pixel cluster shape filter applied
- 3 HF towers cut result is slightly lower than 1HF towers cut

collision event selection

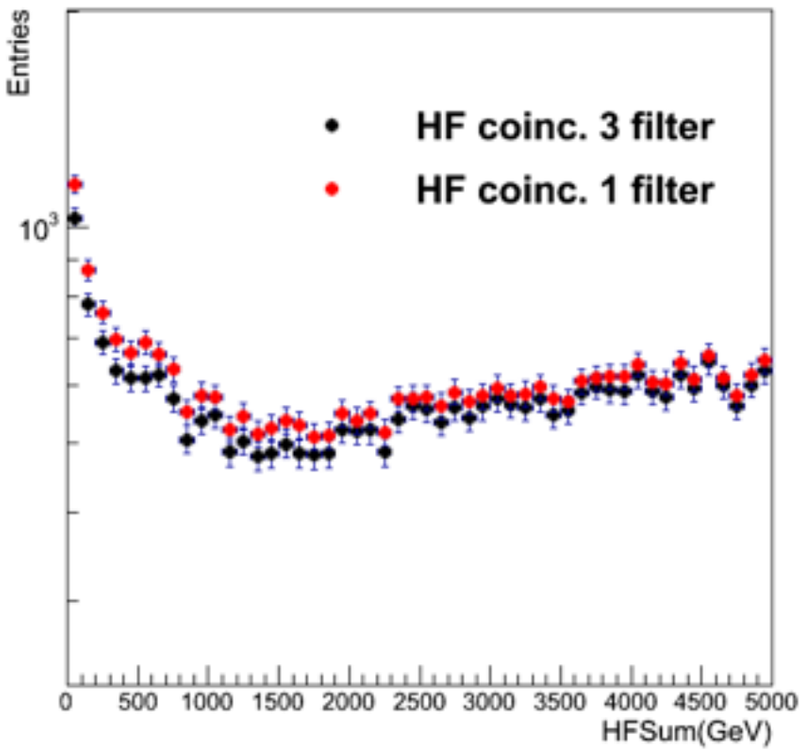


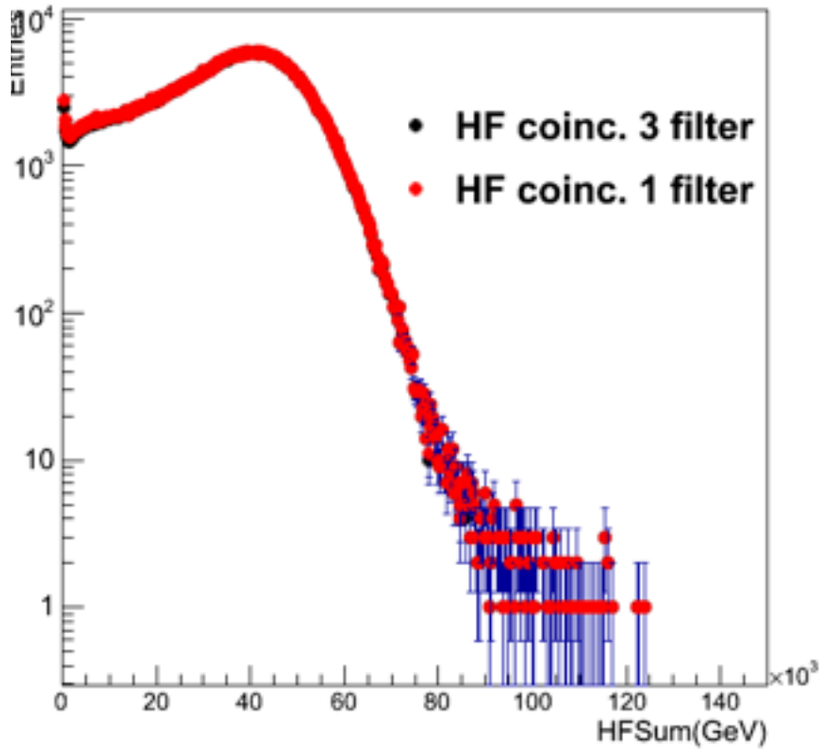


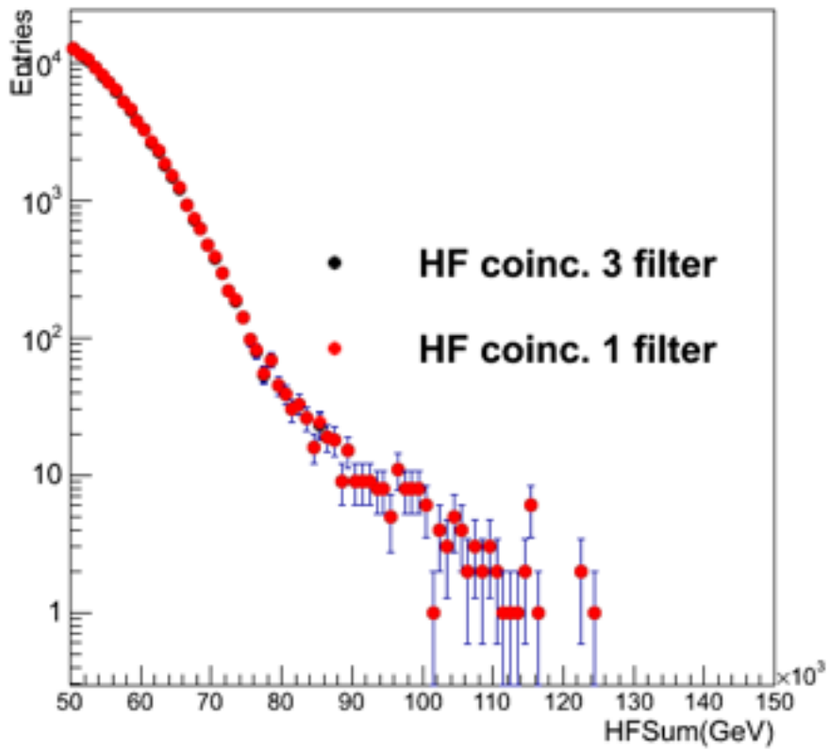


- collision event selection applied
- 2 kind of HF towers cut result is same

primary vertex filter && hlt pixel cluster shape filter

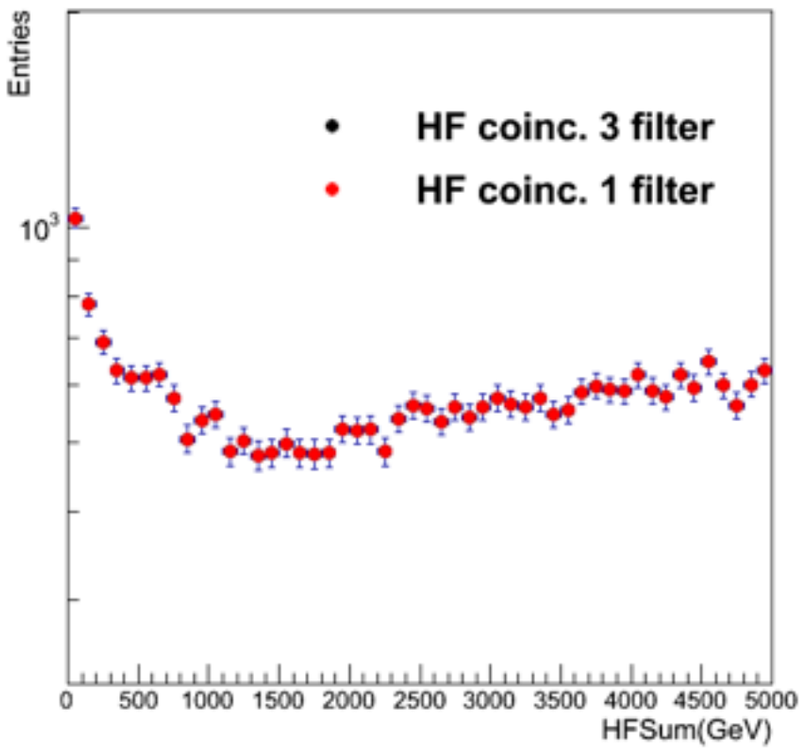


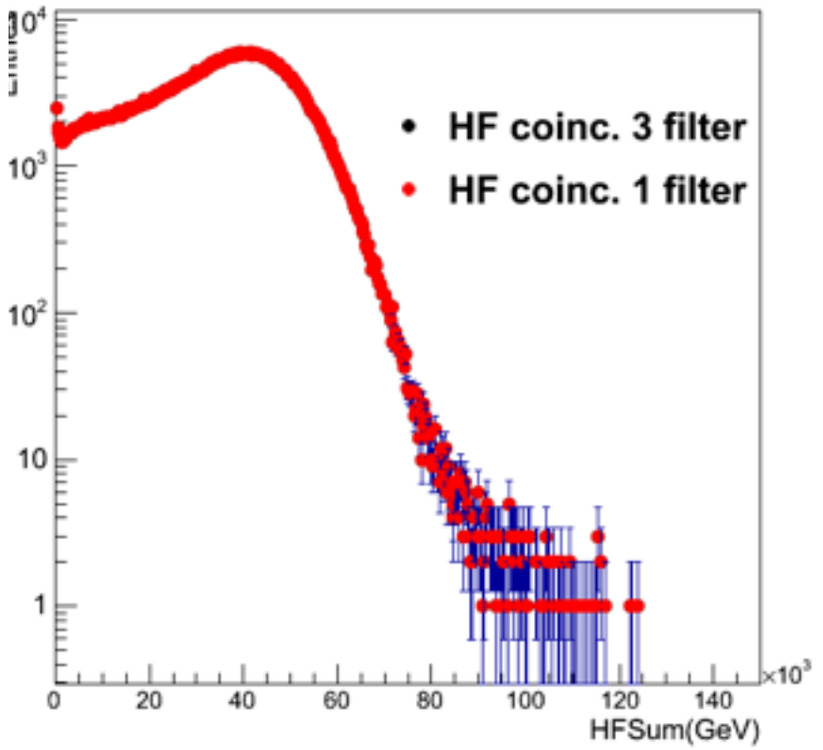


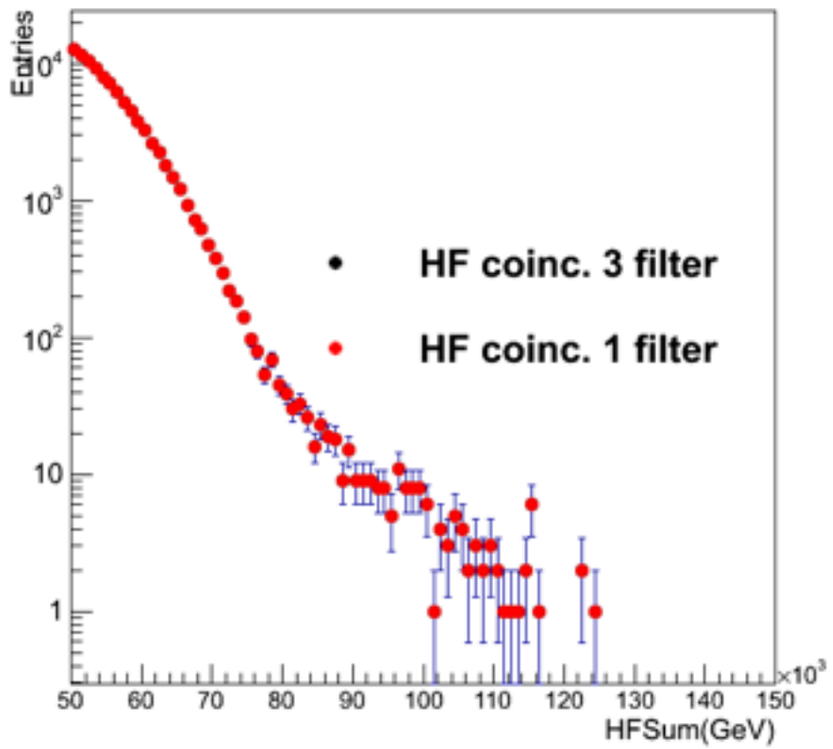


- primary vertex filter and hlt pixel cluster shape filter applied
- 3 HF towers cut result is slightly lower than 1HF towers cut

primary vertex filter && collision event selection

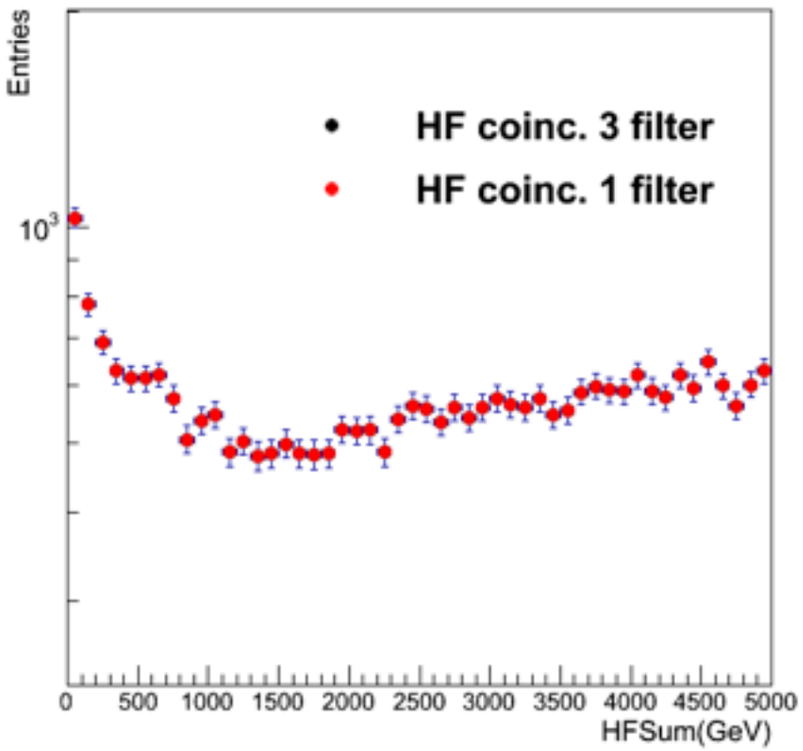


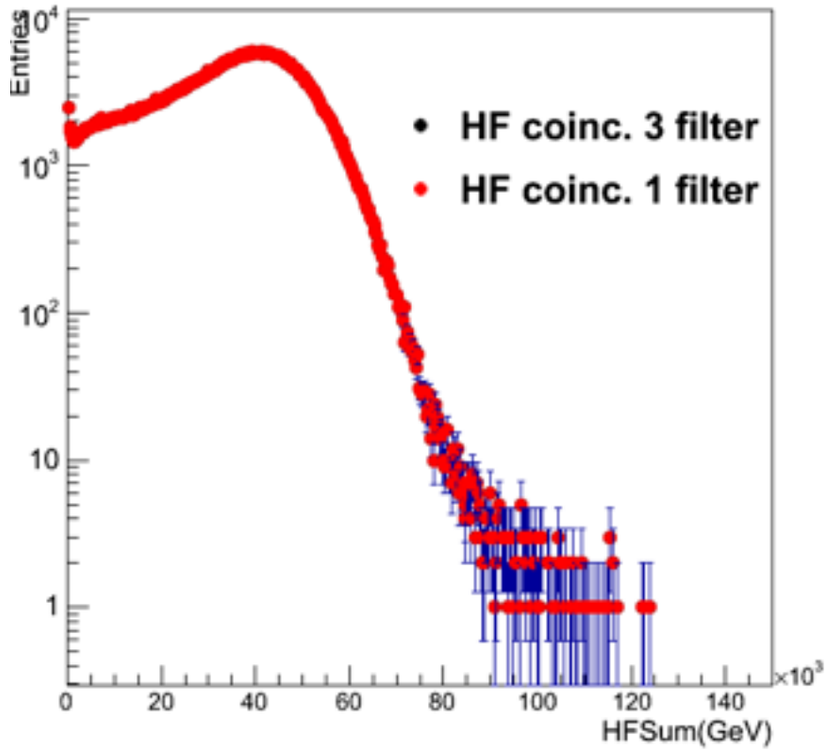


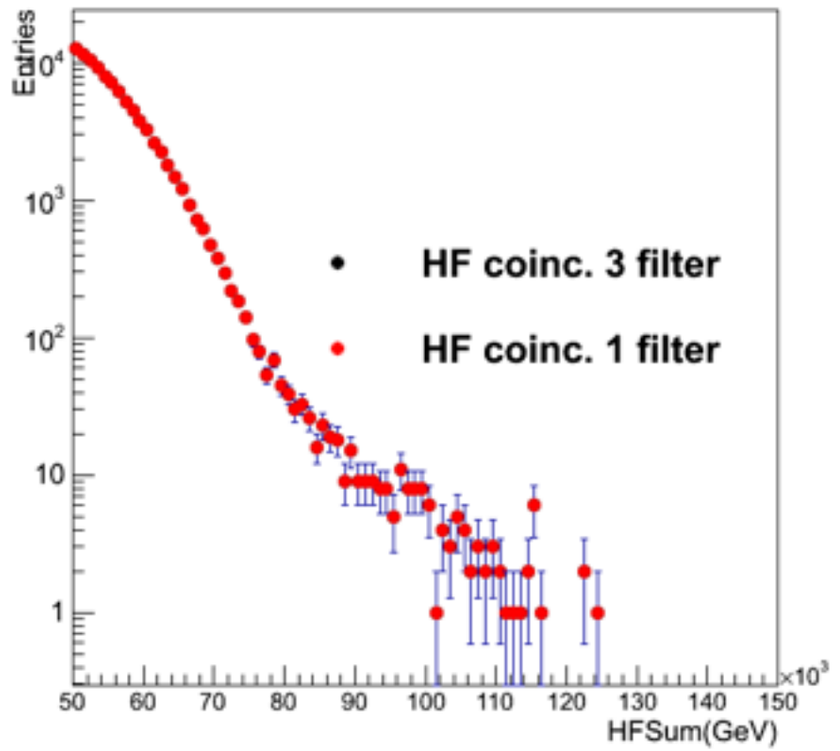


- primary vertex filter and collision event selection applied
- 2 kind of HF towers cut result is same

hlt pixel cluster shape filter && collision event selection

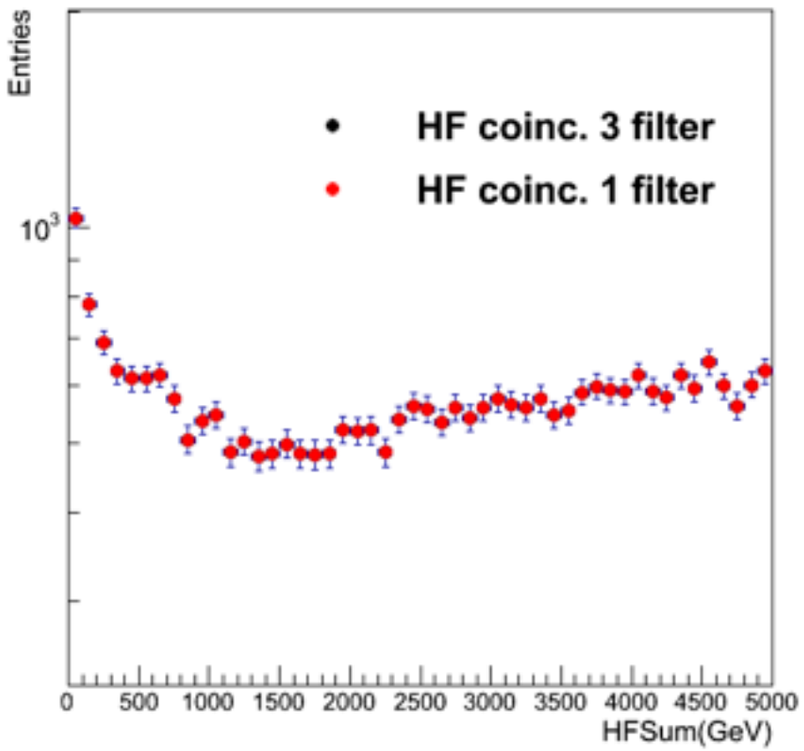


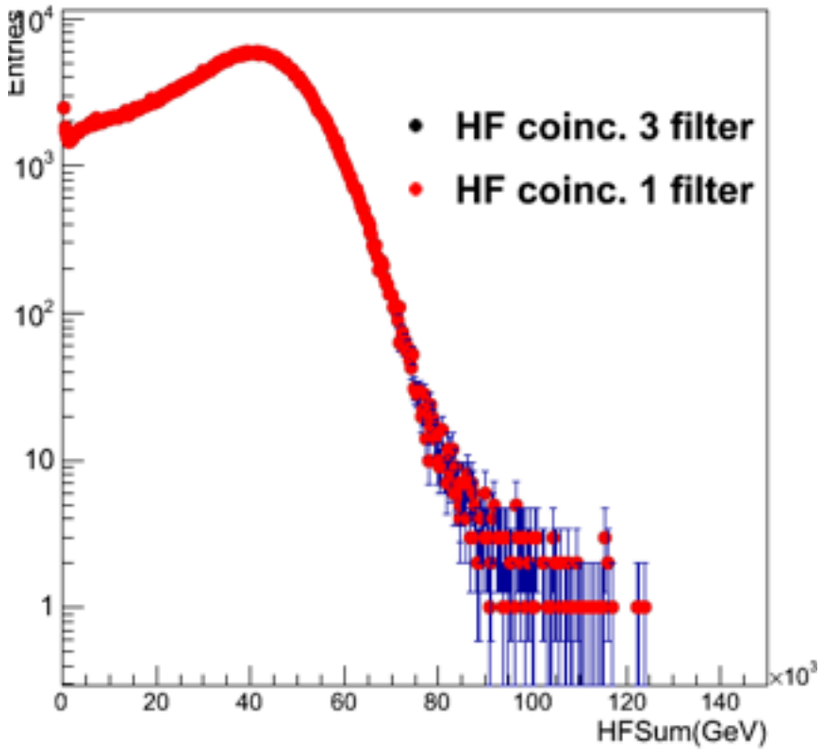


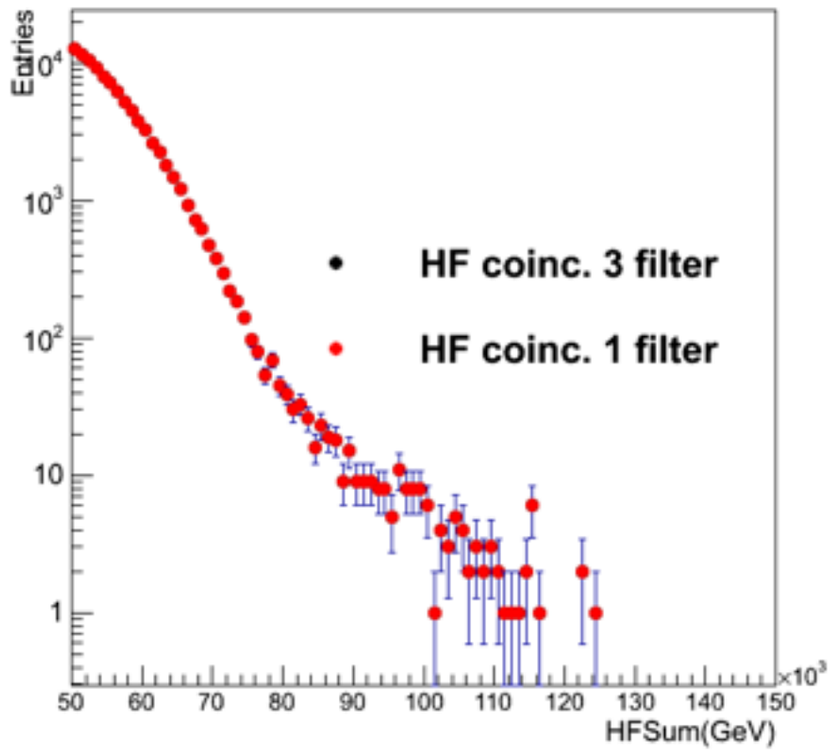


- hlt pixel cluster shape filter and collision event selection applied
- 2 kind of HF towers cut result is same

all cut







- primary vertex filter and hlt pixel cluster shape filter and collision event selection applied
- 2 kind of HF towers cut result is same

summary

- Collision variable studies practiced with Re-reco MinBias samples
- primary vertex filter, hlt pixel cluster shape filter, collision event selection applied
- The default Collision event selection rejects the UPC events
- similar to the HF energy sum, ZDC energy sum also show UPC events in low energy sum
- next step: ZDC coincidence cut and Ntrack relation will be tried

back up