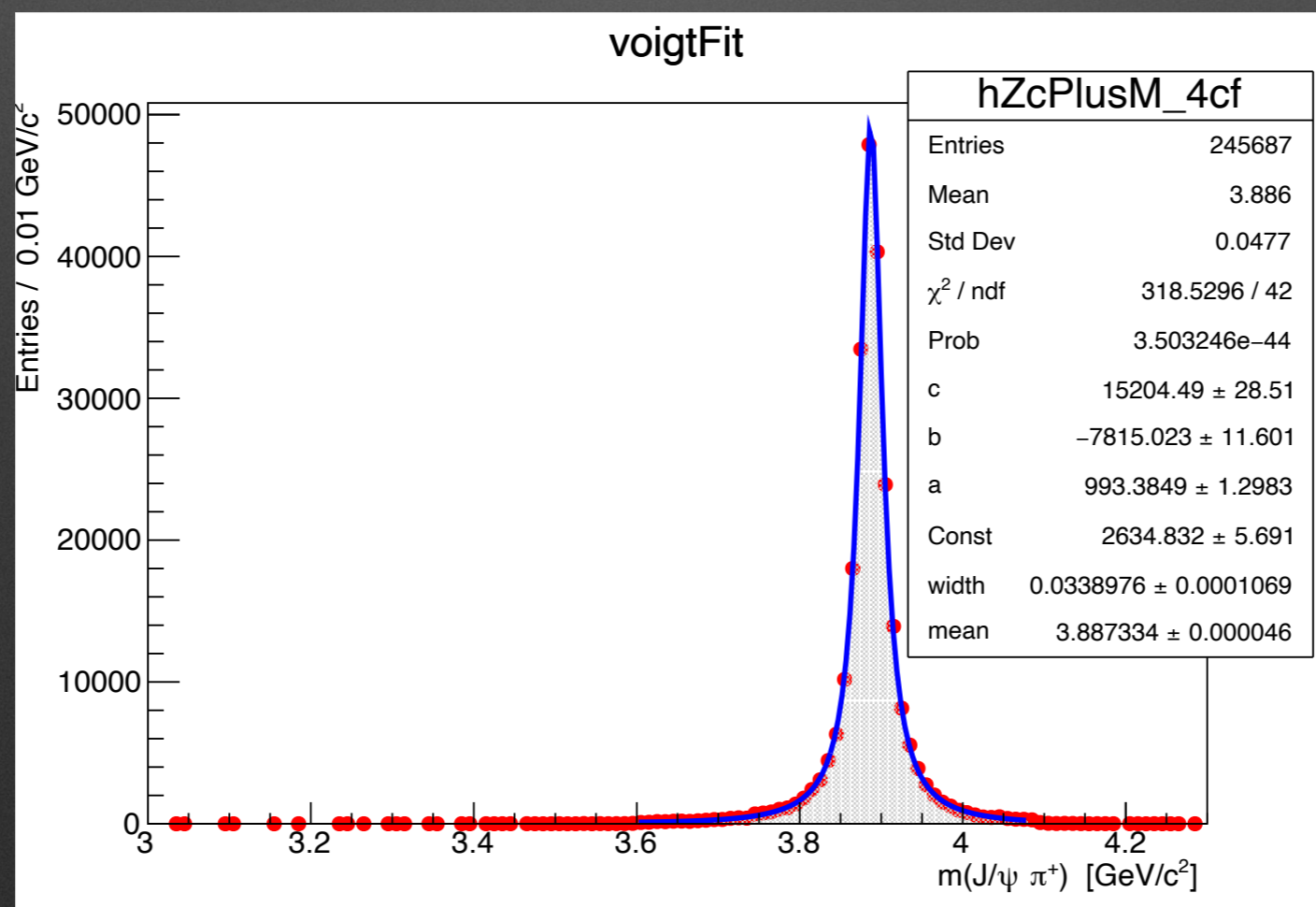
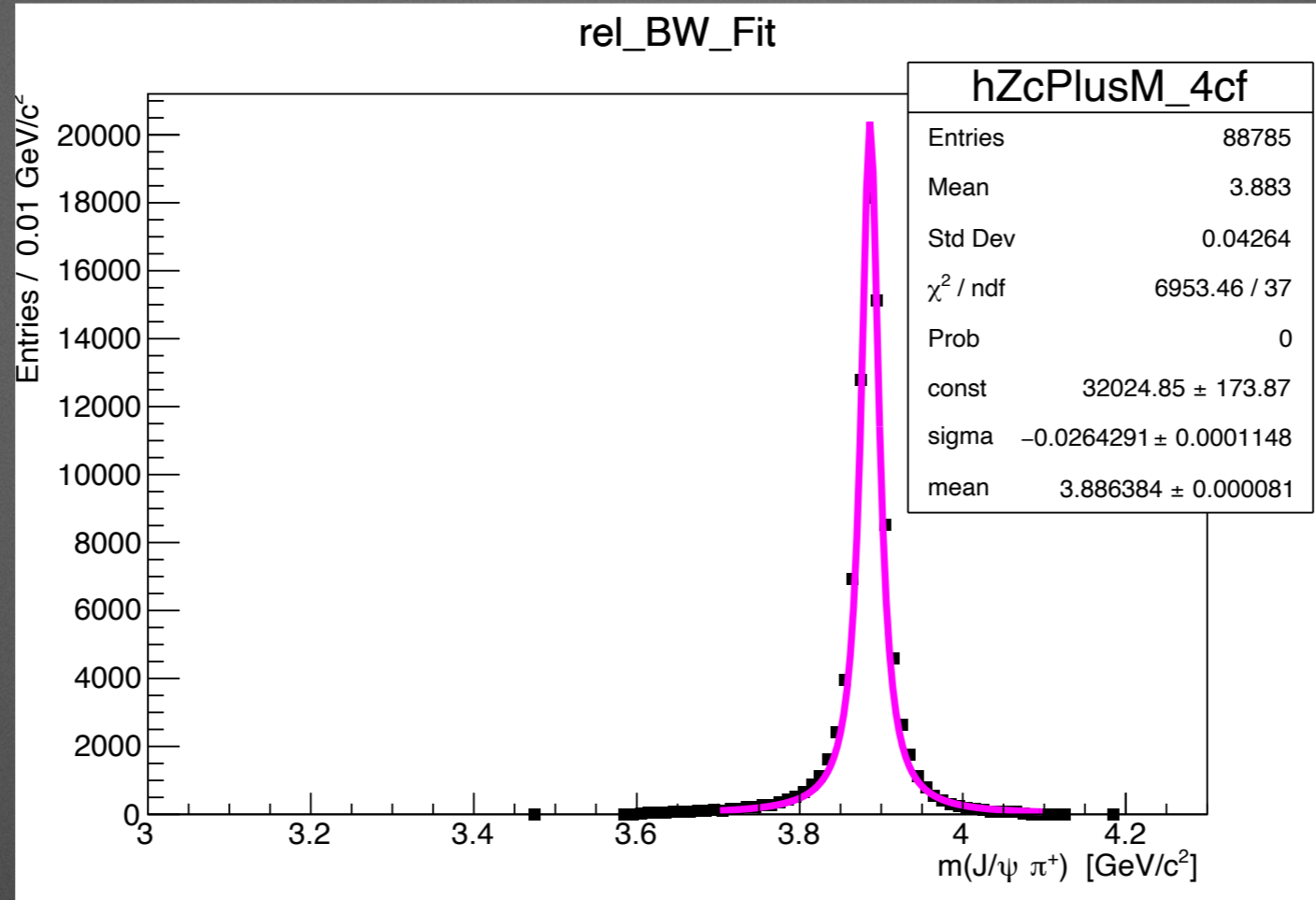


Updates on Zc3900 Study

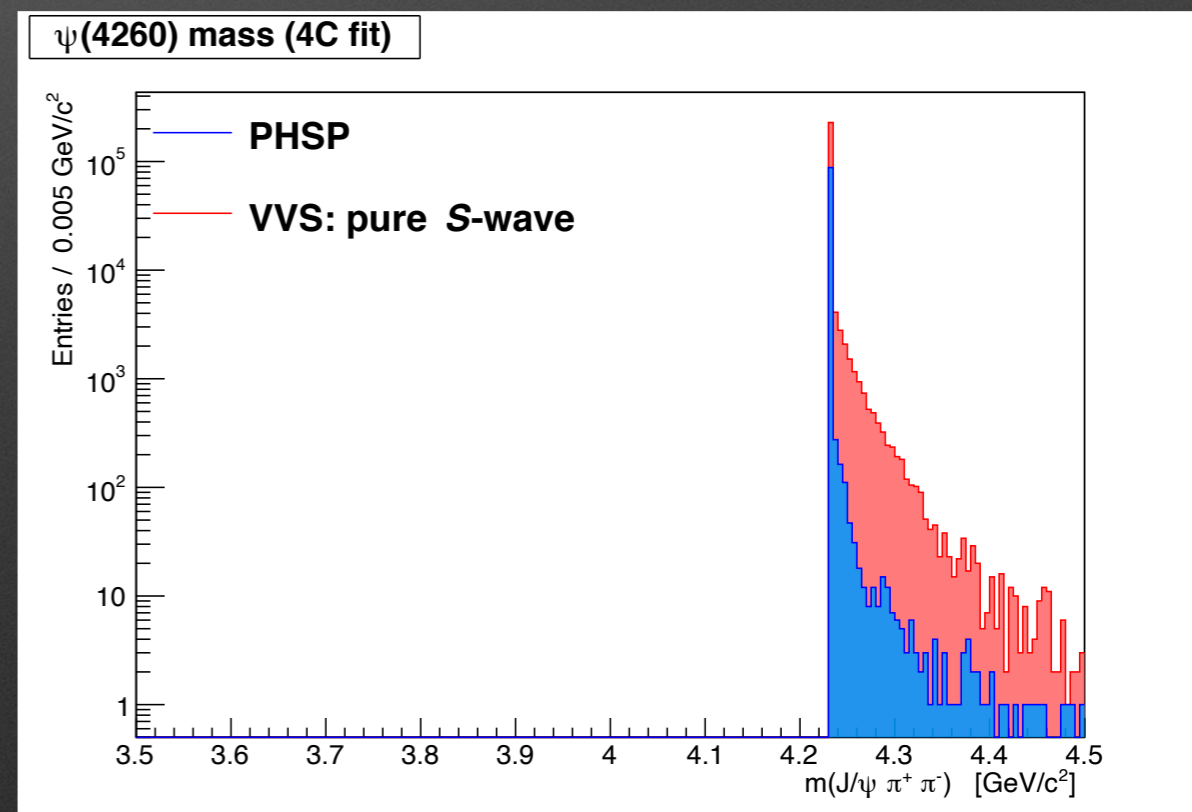
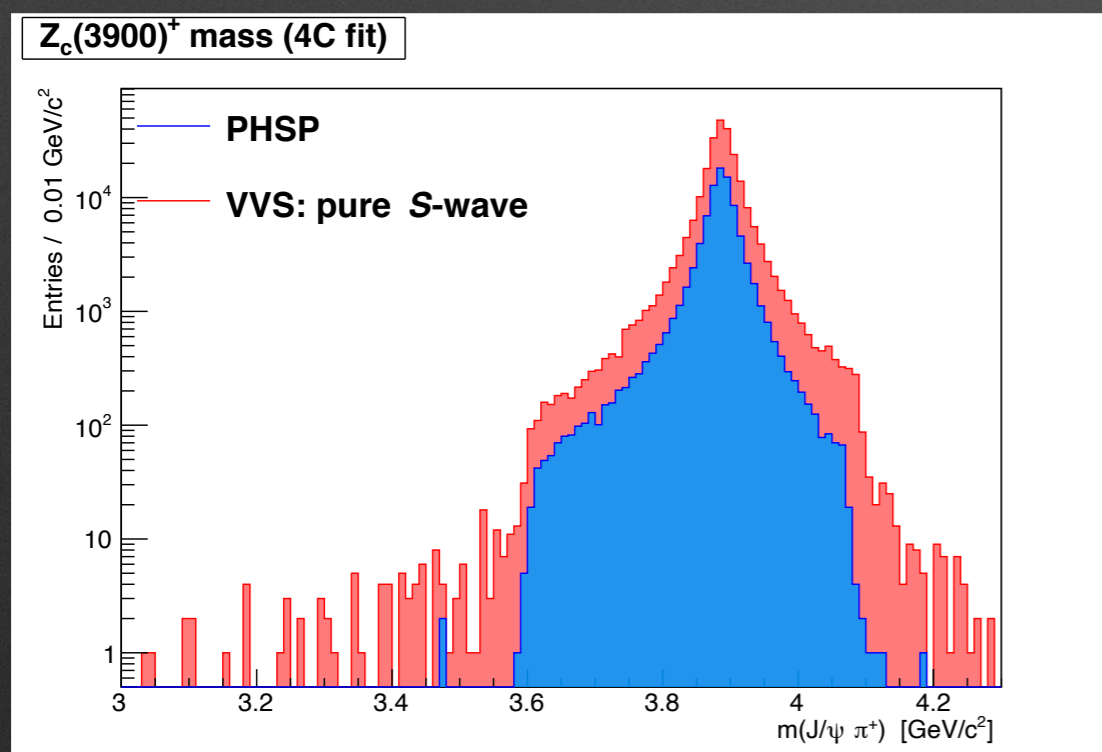
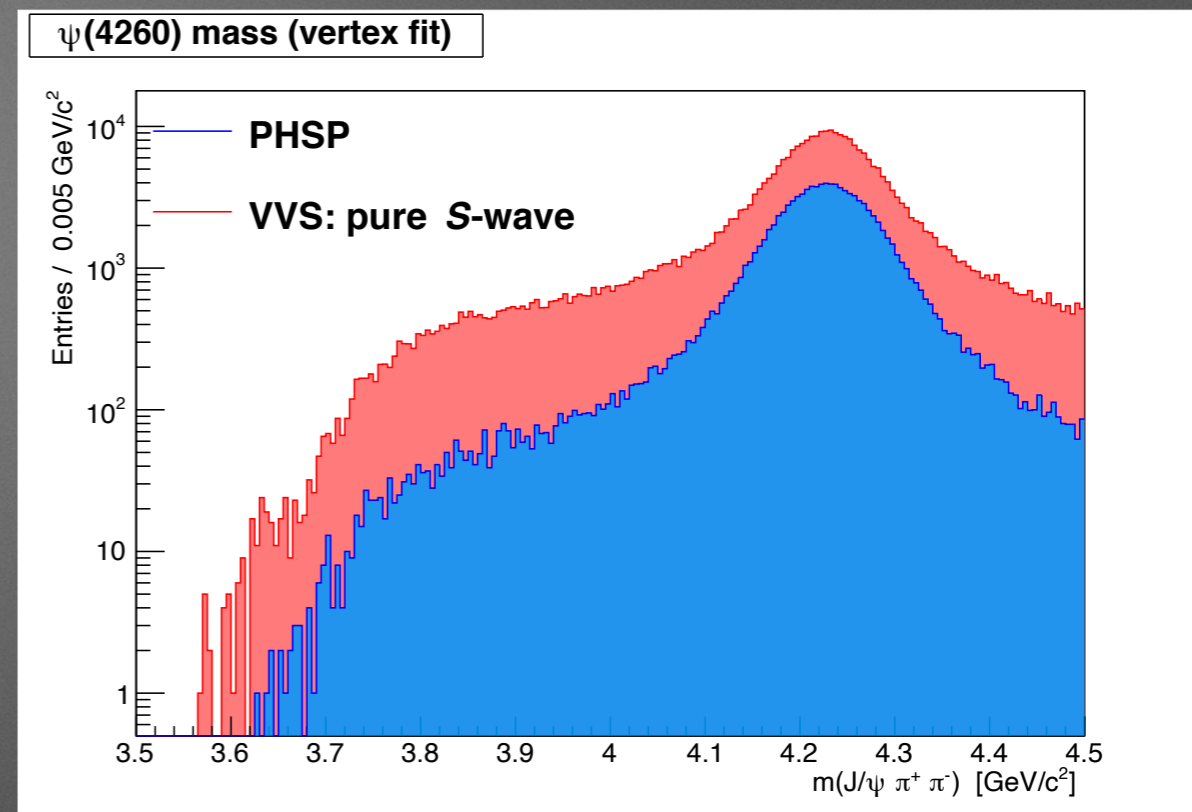
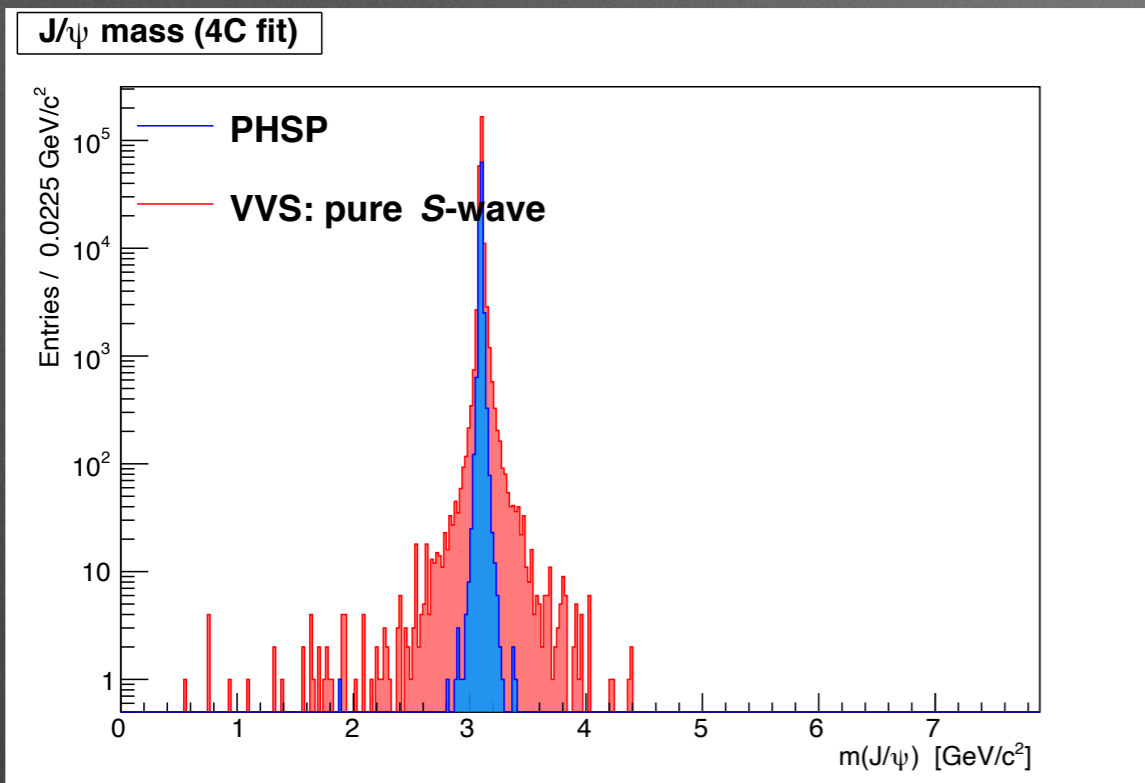
Ali Yilmaz, on behalf of PANDA_TR Group

PWG Meeting April 21, 2021

BW vs Voigt fit



PHSP vs VVS model

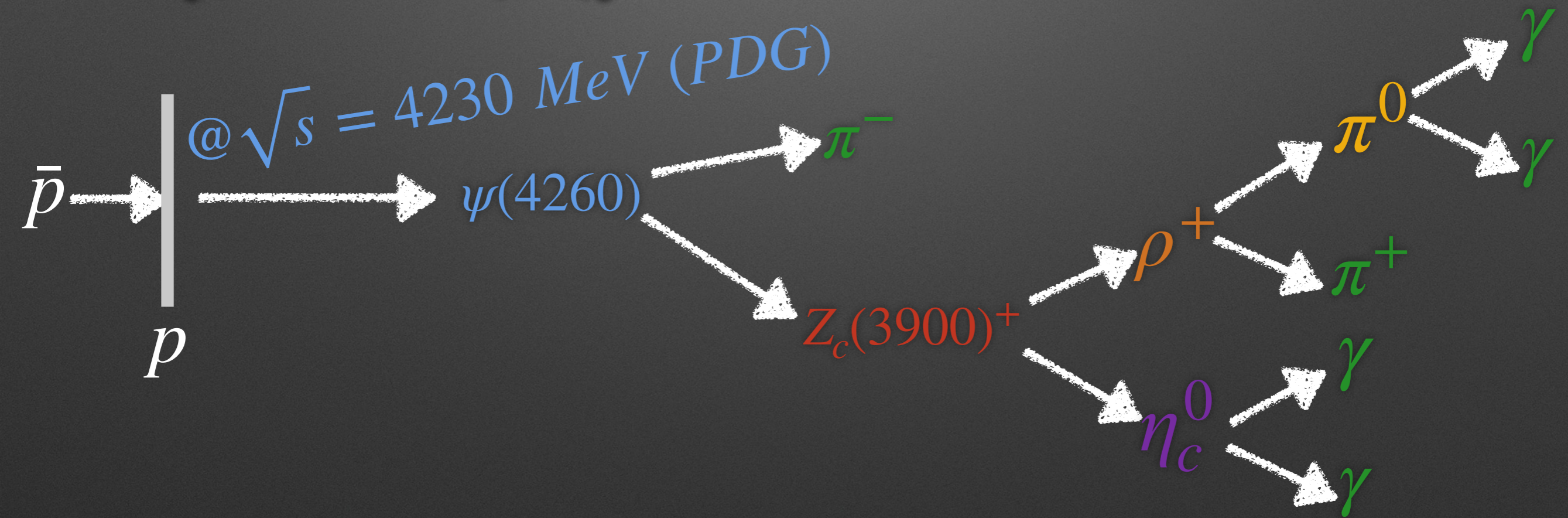


Searching $Z_c(3900)^\pm$ in a Rare Decay Γ_4

* ABLIKIM 2019BC PR D100 111102 Study of $e^+e^- \rightarrow \pi^+\pi^-\pi^0\eta_c$ and evidence for $Z_c(3900)^\pm$
decaying into $\rho^\pm\eta_c$

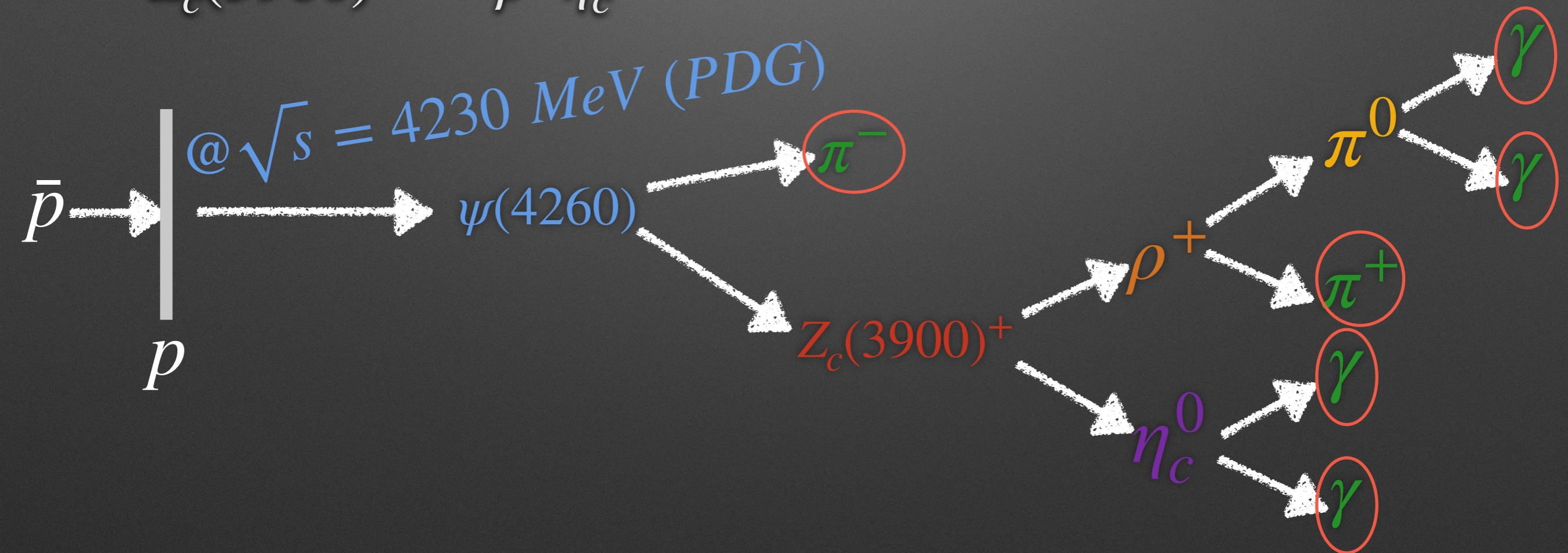
Decay Chain

- $\bar{p}p @ \psi(4260) \rightarrow \pi^+ \pi^- \pi^0 \eta_c$
- $Z_c(3900)^\pm \rightarrow \rho^\pm \eta_c$



Decay Chain

- $\bar{p}p @ \psi(4260) \rightarrow \pi^+ \pi^- \pi^0 \eta_c$
- $Z_c(3900)^\pm \rightarrow \rho^\pm \eta_c$



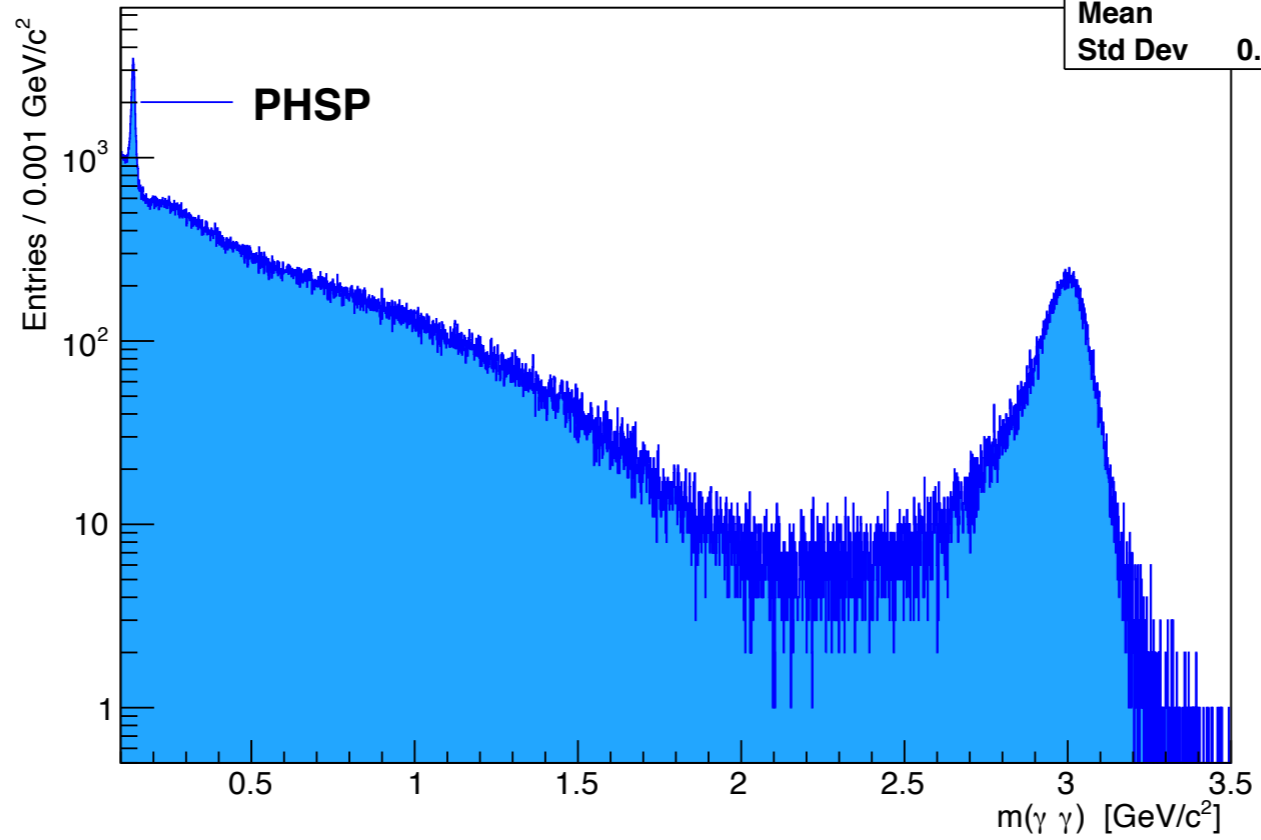
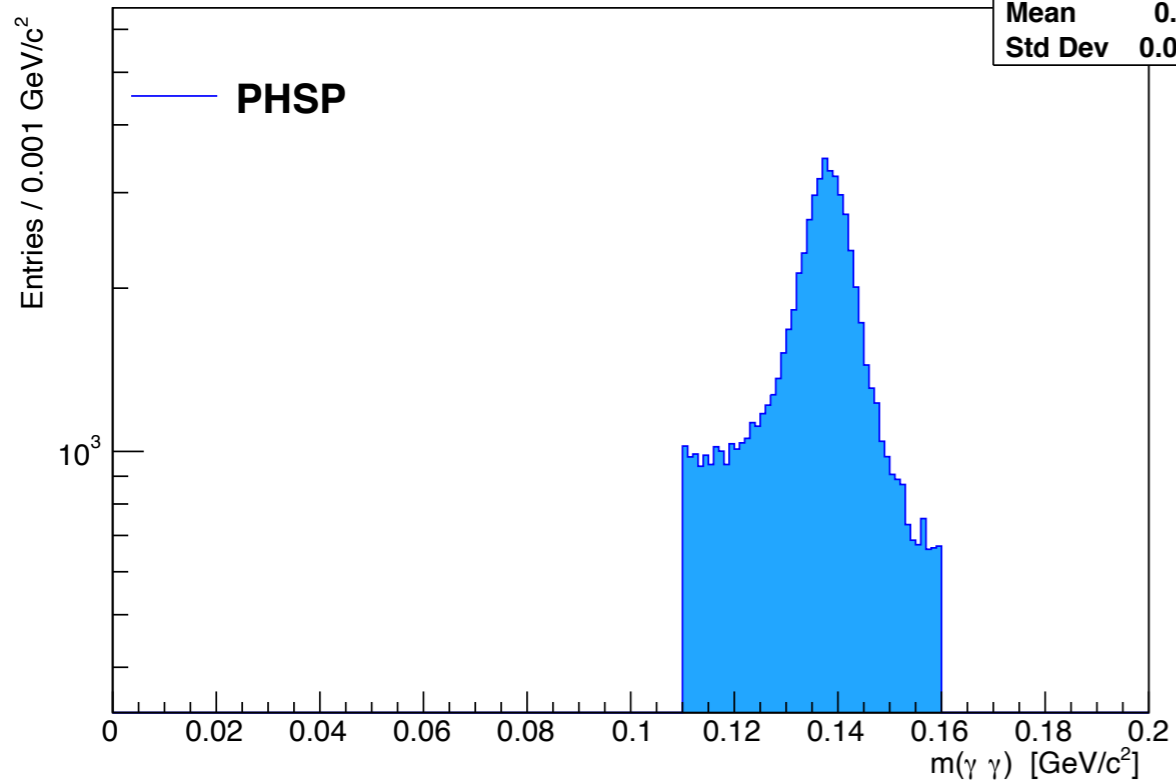
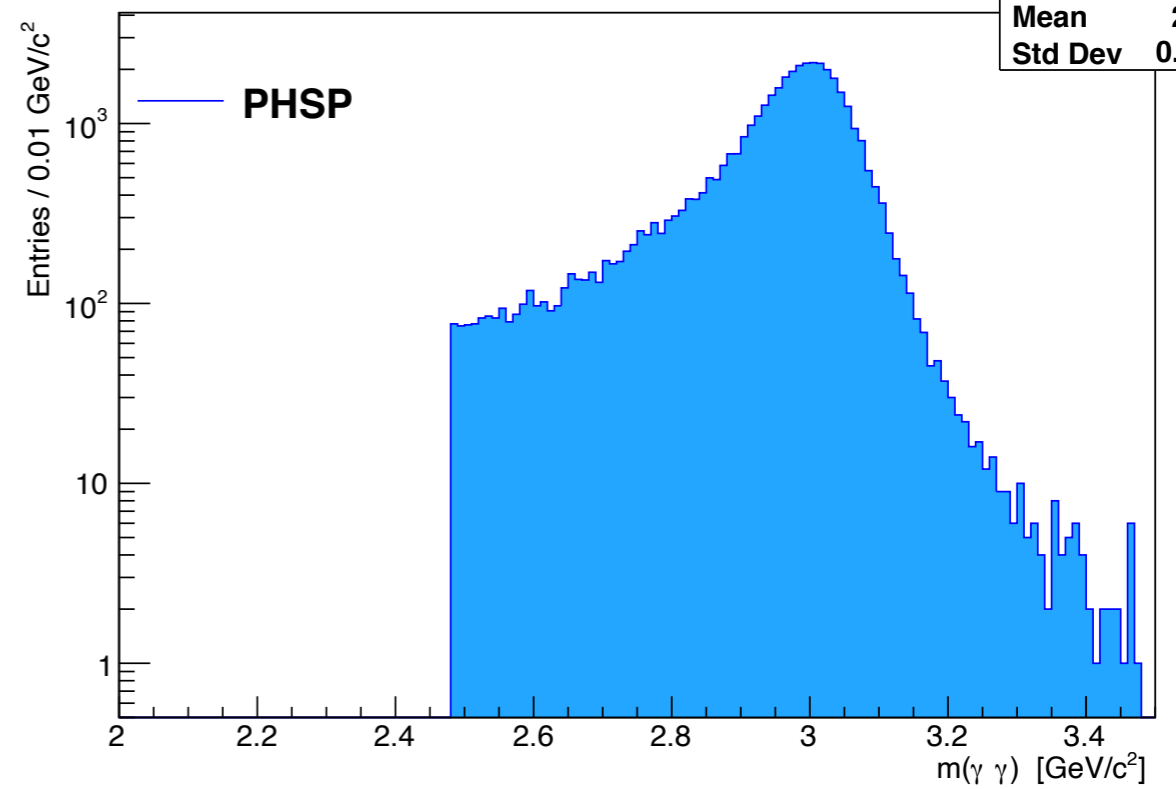
Decay Chain:

dec File →

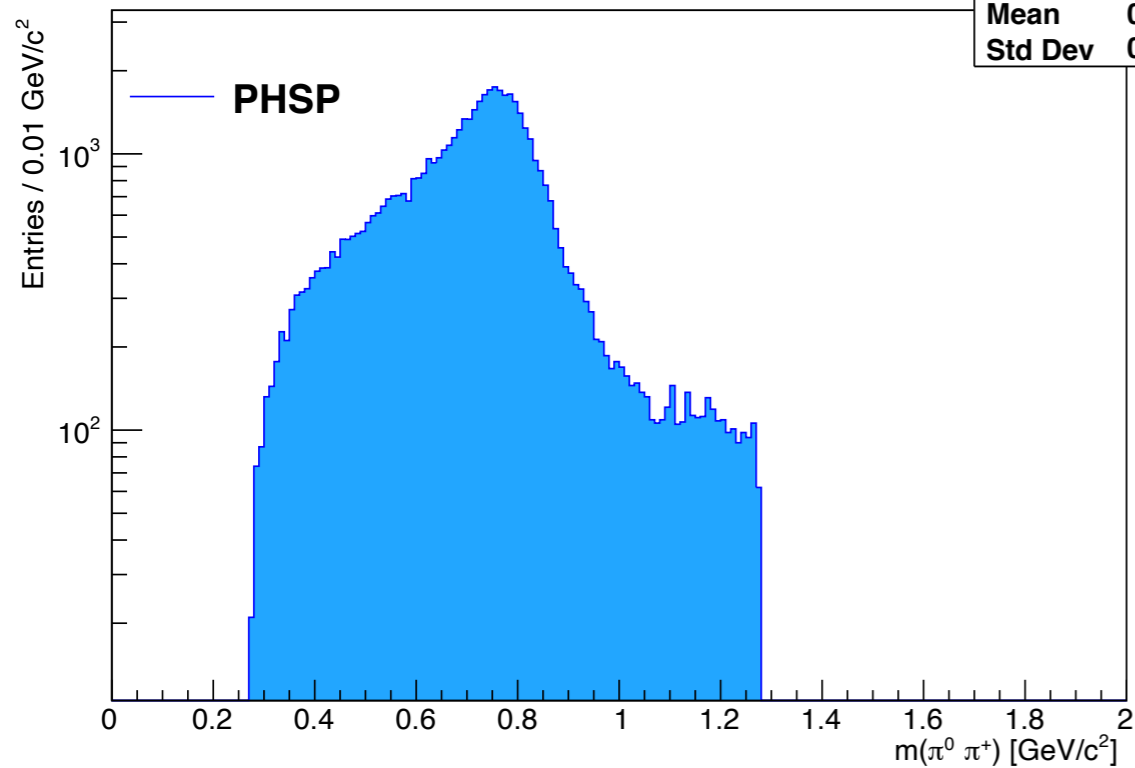
generated : 100k events

```
pp_Zc3900p_EtacRho_noPhotos_PHSP_v1.dec
Edited

1 noPhotos
2
3 Decay pbarpSystem1
4 1.0 Z_c(3900)+ pi- PHSP;
5 Enddecay
6
7 Decay Z_c(3900)+
8 1.0 eta_c rho+ PHSP;
9 Enddecay
10
11 Decay rho+
12 1.000 pi+ pi0 PHSP; #VSS;
13 Enddecay
14
15 Decay eta_c
16 1.0 gamma gamma PHSP;
17 Enddecay
18
19 Decay pi0
20 1.000 gamma gamma PHSP; #VSS;
21 Enddecay
22
23
24 End
```

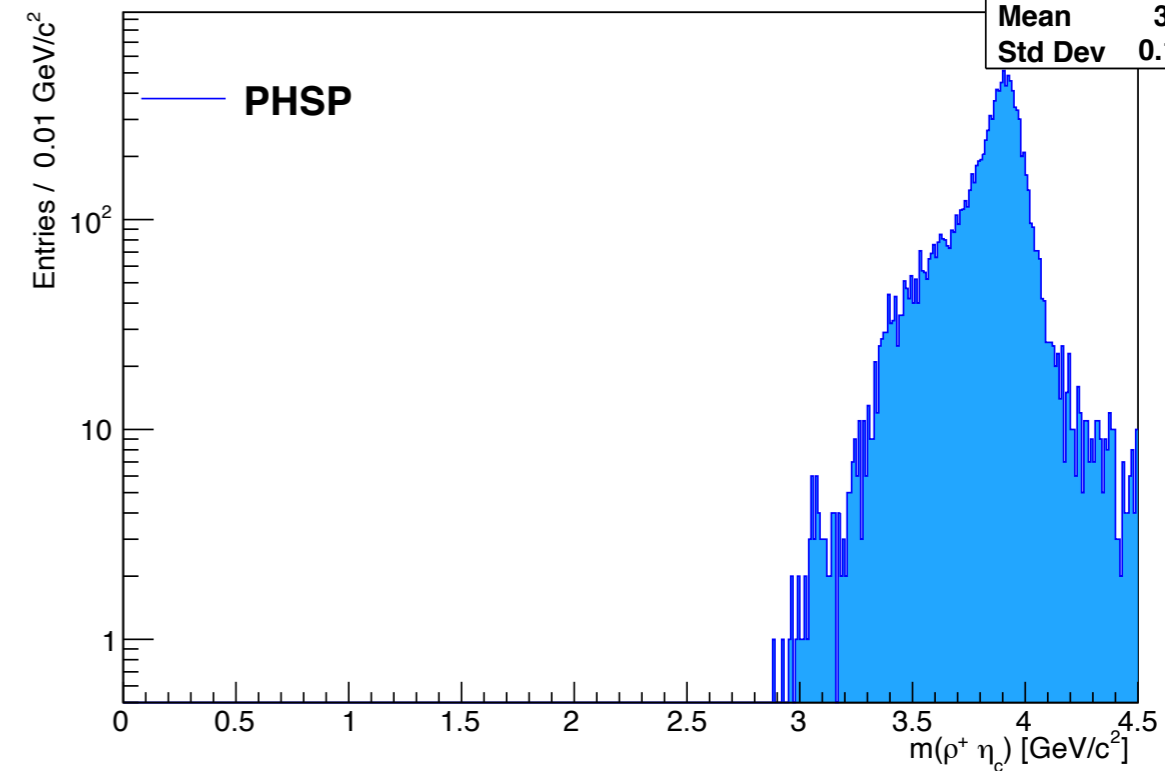
neutral cand mass (all) **π^0 mass (all)** **η_c mass (all)**

ρ^+ mass (all)



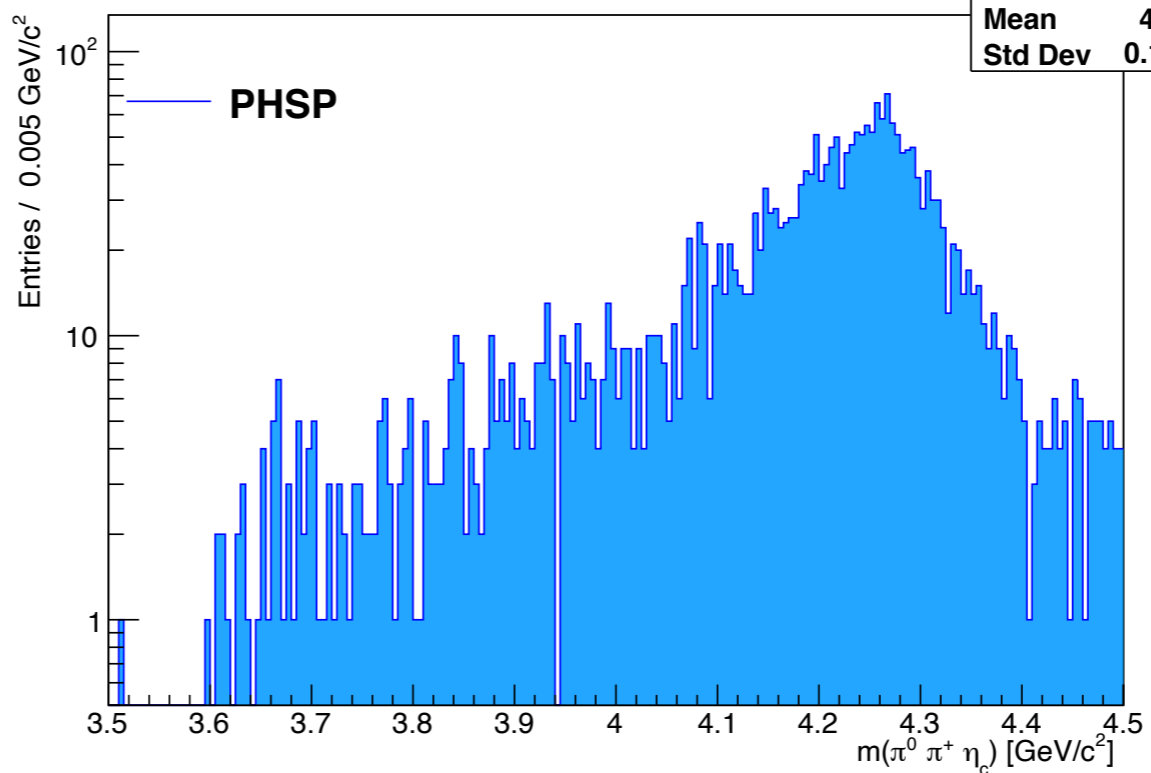
hrhoplusm_all	
Entries	54419
Mean	0.7093
Std Dev	0.1804

$Z_c(3900)^+$ mass (all)



hZcPlusM_all	
Entries	12013
Mean	3.839
Std Dev	0.1883

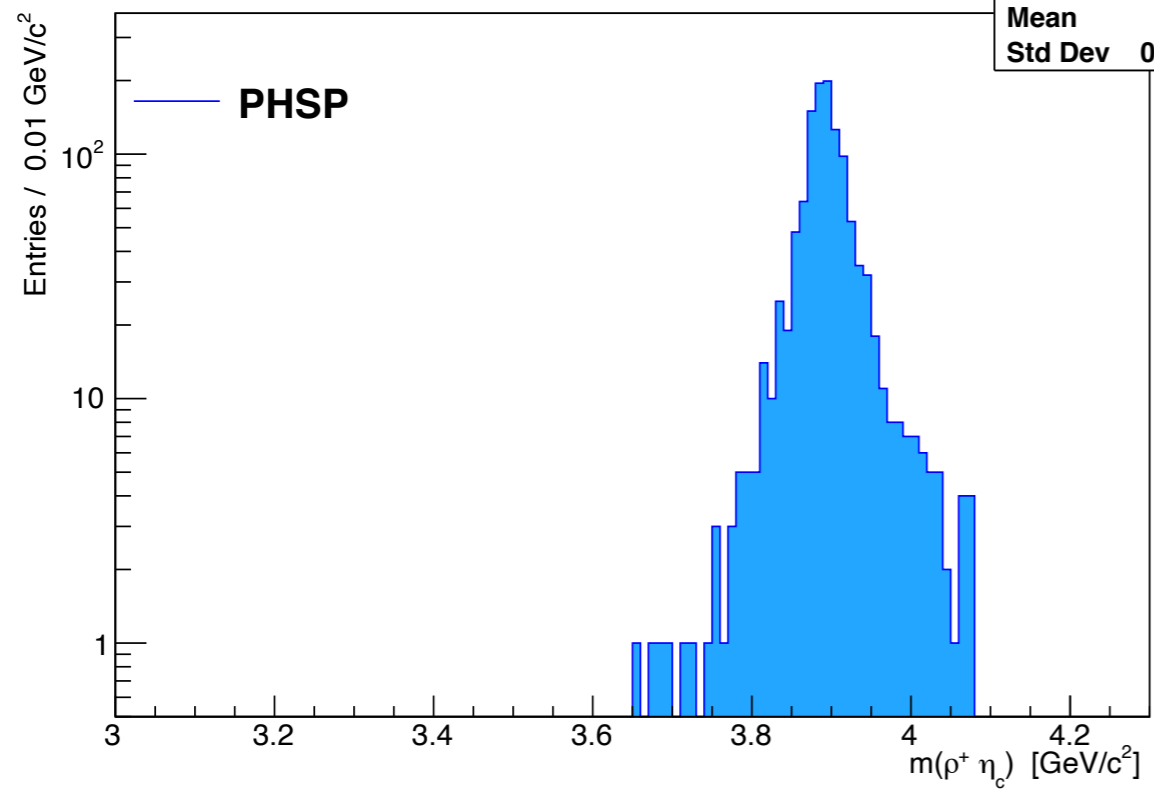
$\psi(4260)$ mass (all)



hpsim_all	
Entries	2834
Mean	4.179
Std Dev	0.1624

$Z_c(3900)^+$ mass (4C fit)

hZcPlusM_4cf	
Entries	1186
Mean	3.895
Std Dev	0.04352



$\psi(4260)$ mass (4C fit)

hpsi4260M_4cf	
Entries	1186
Mean	4.233
Std Dev	0.01232

