

Reply Xiaorong's comments

- Calculate eff_uncertainty for binomial distribution:

$$\Delta_b = \sqrt{\frac{\epsilon(1 - \epsilon)}{N}}$$

[2009 data set] by Ryuta

$$\epsilon = \frac{N(\text{Channel 0 - 5 \&\& Channel 11})}{N(\text{Channel 11})} = 4210/4235 = 99.4 \% \text{ (this time)}$$
$$= \underline{4212/4237 = 99.4 \% \text{ (in the memo)}}$$

```
[xiaosy@lxslc605 ~/bes/jpsi2invi/v0.1/python 10:13:44]$ ./cal_eff_trig_err.py
trig_eff = 0.9941 +- 0.001083
```

Trig_eff for data 2012

- Check No. Channel: <http://bes3db.ihep.ac.cn/trgtable>

Table 7: Trigger setting for the 2009 $\psi(2S)$ running. Channel 0 is designed for endcap Bhabha events, Channels 1 to 5 for events with charged particles in the barrel region and Channel 11 for all-neutral events.

Channel in 2012	Channel in 2009	Conditions
1	0	STrk_BB && NETOF.GE.1 && NEClus.GE.1
2	1	NLTrk.GE.2 && NBTOF.GE.2 && NBClus.GE.1
3	2	NLTrk.GE.2 && NBTOF.GE.2
?	3	CND42 LTrk_BB && NBTOF.GE1 CND21
5	4	NLTrk.GE.1 && NBTOF.GE.1 && Etot_L
6	5	NLTrk.GE.2 && NBTOF.GE.1 && NBClus.GE.1
10	9	random trigger at 60 Hz
12	11	NClus.GE.2 && Etot_M
4		LTrk_BB && BTOF_BB

Channel	Conditions
0	STrk_BB && NETOF.GE.1 && NEClus.GE.1
1	NLTrk.GE.2 && NBTOF.GE.2 && NBClus.GE.1
2	NLTrk.GE.2 && NBTOF.GE.2
3	LTrk_BB && NBTOF.GE1
4	NLTrk.GE.1 && NBTOF.GE.1 && Etot_L
5	NLTrk.GE.2 && NBTOF.GE.1 && NBClus.GE.1
9	Random trigger at 60 Hz
11	NClus.GE.2 && Etot_M

TABLE 2. Trigger settings for the 2009 ψ' running. Channel 0 is designed for endcap Bhabha events, channels 1 to 5 for events with charged particles in the barrel region and channel 11 for all-neutral events.

from memo

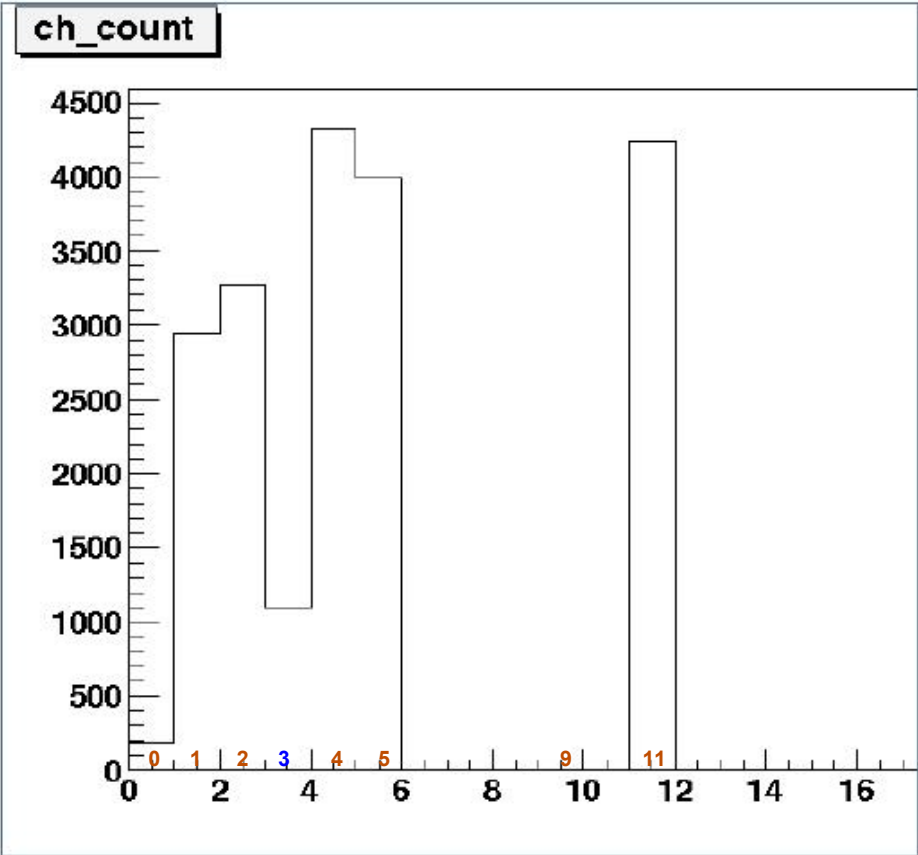
Channel	Conditions
0	STrk_BB && NETOF.GE.1 && NEClus.GE.1
1	NLTrk.GE.2 && NBTOF.GE.2 && NBClus.GE.1
2	NLTrk.GE.2 && NBTOF.GE.2
4	NLTrk.GE.1 && NBTOF.GE.1 && Etot_L
5	NLTrk.GE.2 && NBTOF.GE.1 && NBClus.GE.1
9	Random trigger at 60 Hz
11	NClus.GE.2 && Etot_M

TABLE 4. Trigger settings for the 2009 J/ψ running. Channel 0 is designed for endcap Bhabha events, channels 1 to 5 for events with charged particles in the barrel region and channel 11 for all-neutral events. The only difference with regards to the ψ' running is the removal of channel 3 due to high noise.

Reference I. Comparison of Trigger Channel

by Ryuta 20180130

2009 data



2012 data

