

# weekly report

7-13

# discussion on Jpsi to inv.

## 6.2 $\psi(3686) \rightarrow \pi^+\pi^- J/\psi, J/\psi \rightarrow \mu^+\mu^-$

For the exclusive decay mode  $\psi(3686) \rightarrow \pi^+\pi^- J/\psi, J/\psi \rightarrow \mu^+\mu^-$ , the background level is rather low, so here we count the number of signals in the region  $|M_{\pi^+\pi^-}^{\text{rec}} - M_{J/\psi}| < 15 \text{ MeV}/c^2$  directly and the number is  $714438 \pm 693$ . After subtracting the dominant background events,  $\psi(3686) \rightarrow \pi^+\pi^- J/\psi, J/\psi \rightarrow \pi^+\pi^-$  ( $744 \pm 25$ ) and  $\psi(3686) \rightarrow \eta J/\psi, \eta \rightarrow \gamma\pi^+\pi^-, J/\psi \rightarrow \mu^+\mu^-$  ( $35 \pm 6$ ), and scaled continuum data ( $7 \pm 5$ ), the signal yield is found to be  $713652 \pm 693$ .

- could not repeat the statistical uncertainty of yield given by Qian.
- Dayong prefer use [binominal-uncertainty](#), rather than  $\sqrt{N}$
- But neither formula could repeat the value in memo.
- may be Qian calculated it mistakenly.? OR my understanding is not right.....

我用的是二项分布的误差公式：

$$V(x) = np(1-p)$$

不过我理解为n是总的di-muon数量，p是探测效率，所以可以是  $\sqrt{713652 * (1-0.3236)} = 695$   
我之前实际的算法是通过Psi (2S) 的数量和分之比计算了di-muon的数量，也就是没有用之前的探测效率。

供参考。

# plan next week

- Jpsi to inv.
  - make sure calculate the statistical uncertainty of the yield correctly.
  - release memo
- ChicJ to gam inv.
  - reply comments collected on Collaboration meeting
  - plan to give a feed-back report within two weeks on NPG meeting