

Nuclear Lunch Questions for May 30, 2012

1. How do we distinguish and reconstruct π^+ and π^- ? \Rightarrow **Mohand**
2. How do we use the Cherenkov radiation in the experiment? \Rightarrow **Bijaya**
3. How is CKM matrix related to CP violation? \Rightarrow **Linda**
4. How does Standard Model predict a CP violation and matter antimatter asymmetry in the order of 0.1%? Besides LHCb, is there any other study to measure the CP violation? Do they agree with this study? \Rightarrow **YoungShin**
5. Why do we want to use different left and right data in Table 1? Do they just mean different detect efficiencies in the left and right “arm”? If so, should they be cancelled out in the definition of ΔA_{CP} ? Also, in Table 1, the “up” results are always higher than the “down” result. Why? Why the detector asymmetry can not be cancelled out by using ΔA_{CP} , which is supposed to be able to do so? \Rightarrow **Shamim**
6. How do we know how much antimatter there is in the universe? How much CP violation do you need to reproduce what we observed in the universe? \Rightarrow **Cody**
7. Why is the result a **negative** 0.82? What does that mean? Does it mean that they have discovered the physics beyond Standard Model? \Rightarrow **Azamat**
8. Why do they use the production of π^+ and π^- as the signature of the production of D^0 and \bar{D}^0 respectively? \Rightarrow **Sushil**
9. Is using the slow pion the only way to tag the D^0 's? What does it mean that some of the D^0 's are “partially reconstructed”? (See the bottom of Page 3 and Page 4) \Rightarrow **Nowo**
10. Please explain how to calculate δm , and how it is used to select the D^0 candidates. \Rightarrow **Brian**