

## Discussion

- p. 5: for which data set is the BES III integrated luminosity shown?  
For full (all) data.
- p. 7: How come Belle II expected sensitivity is so much better than BaBar's at 500 fb<sup>-1</sup>?  
The reason is that the expected exclusion region from BaBar is shown for a preliminary result using only  $\sim 120 \times 10^3$   $\Upsilon(3S)$  decays, as described in arXiv:0808.0017.
- p. 10: What is the main contribution to  $D^{**}$  background, narrow or wide states?  
This should be checked in the internal notes, however, the main contribution to the systematic uncertainty is represented by wide states for which the  $\text{Br}(B \rightarrow D^{**} l \nu)$  is not precisely known.
- p.12: Why is the systematic uncertainty for the semil. tag method so much larger than for the hadr. tag method?  
One (partial) reason is the fact that also the central value found using the former method is higher. Secondly, an important source of syst. uncertainty is the uncertainty of tagging efficiency which is larger for the semil. tagging than for the hadronic one.
- p. 13: Why is there no constraint from  $F_L$ ?  
The reason is that polarization can only be measured using hadronic tagging (where the B meson direction is exactly known).  
Added after private comm.: one should investigate methods enabling polarization determination also for semil. tagged events.
- p. 16: From th. point of view it is better to measure DCPV in  $b \rightarrow (s+d) \gamma$ , where expected asymmetry is  $\sim 0$ .  
This can be done using the method described for measuring  $\text{Br}(b \rightarrow (s+d) \gamma)$  using hadr. or semil. tagging.
- p. 20: What is meant by »SM expectation reached« at  $S(B \rightarrow \phi K_s)$ ?  
Not sure what is meant.  
Added after additional check: at least within some older calculations (in the framework of QCD factorization) the th. precision on  $S(B \rightarrow \phi K_s)$  is around 0.02 (Cheng et al., PRD72, 014006 (2005); Beneke, PLB620, 143 (2005)). Since the expectation is around 0 (within the mentioned uncertainty) on the slide it says »SM expectation reached«.
- General: B factories in the past focused on golden modes with 2- or perhaps 3-body final states. Nowadays in many measurements to be compared to theory we are facing uncertainties due to many body final states not being included in the measurements (and/or in th. calculations).  
Yes, we will have a separate discussion session on methods for multi-body decays.  
Importance of specific multi-body modes should also be mentioned in the final B2TIP report.