

Many (all) the questions have been answered during the Q&A period. Nevertheless, we ask that you provide written answers below so students can come back to read them again. Thanks!

1. (Page 26) Could you explain more the advantages of the mixing of CP even and odd states analysis?

Let us consider the decay $B \rightarrow J/\psi \phi$. The decay may proceed through a mix of S-wave (relative angular momentum $l=0$) or P-wave ($l=1$) or D-wave ($l=2$), resulting in a mix of CP-odd and CP-even final states with opposite CP asymmetries. So, it is necessary to separate the two components using the angular distributions of the decay products, otherwise the measured total asymmetry would be diluted and incorrect. For example if the two components are equal in magnitude, one could end up with zero asymmetry. Clearly this can not be compared with theoretical predictions.

2. (Page 23) In general how we can interpret a Dalitz plot? Could you explain more about the Dalitz plot?

Dalitz plot is a method of describing the phase space of a 3-body decay using the invariance masses of two of the three possible pairs of the final state particles. This is a well established technique in particle physics. The density across the 2-dimensional plot could reveal the presence of resonances as well as interference between the resonances.