

Open questions – Precision measurements in B decays

- Mixing and CP violation in mixing, β , β_s , lifetimes :
- Where should we look to improve experimental precision even if theoretical uncertainties are already limiting e.g Bs mixing ?
- Control of detector asymmetries – calibration samples, magnet reversal etc, how important?
- Interplay between B factories and LHCb for A_{sl} ?
- Current theory uncertainties on A_{sl} tiny in comparison to experiment – how to test their reliability – testing the quark hadron duality?
- For β & β_s – are there significant improvements to be had with better electron resolution ?
- Can experimental lifetime ratios further probe theory predictions ?
- How to control the time acceptance/length scale/ flavour tagging?
- Penguin pollution road map – plenty of ideas both from experiment and theory – can all avenues be pursued?
- Penguin free modes – results and analyses starting but analyses are difficult– understanding experimental constraints to support these measurements and ensure their precision in the future.

γ , charm mixing, charm threshold data

- γ , charm mixing, charm threshold :
- Importance of model independence
- The belts & buckles & braces & elasticated waist approach:
 - Beautiful and charming for physics despite being ugly for fashion
 - B decays sensitive to gamma, charm mixing & CPV and also charm strong phases. How best to optimise measurements?
- Are there further decay channels to pursue – and can they be done? Can efficiency variations over phase space be adequately controlled?
- Need for 10-20 fb QC charm dataset essential
- No shining golden mode and more than one experimental player
 - When to start discussions on how outputs are presented & combined?
- Constraints on new physics in tree level – to what extent can we use measurements of γ to do this.

$|V_{ub}|$ & CPV in loops

- $|V_{ub}|$
 - Constraining theoretical inputs with more complex analyses e.g differential q^2 measurement
 - Measurements of $|V_{cb}|$?
 - New modes for exclusive measurements coming soon
 - Plenty of improvements possible on the theory predictions of inclusive $|V_{ub}|$
- CPV in charmless
 - To be finished after final 2 talks