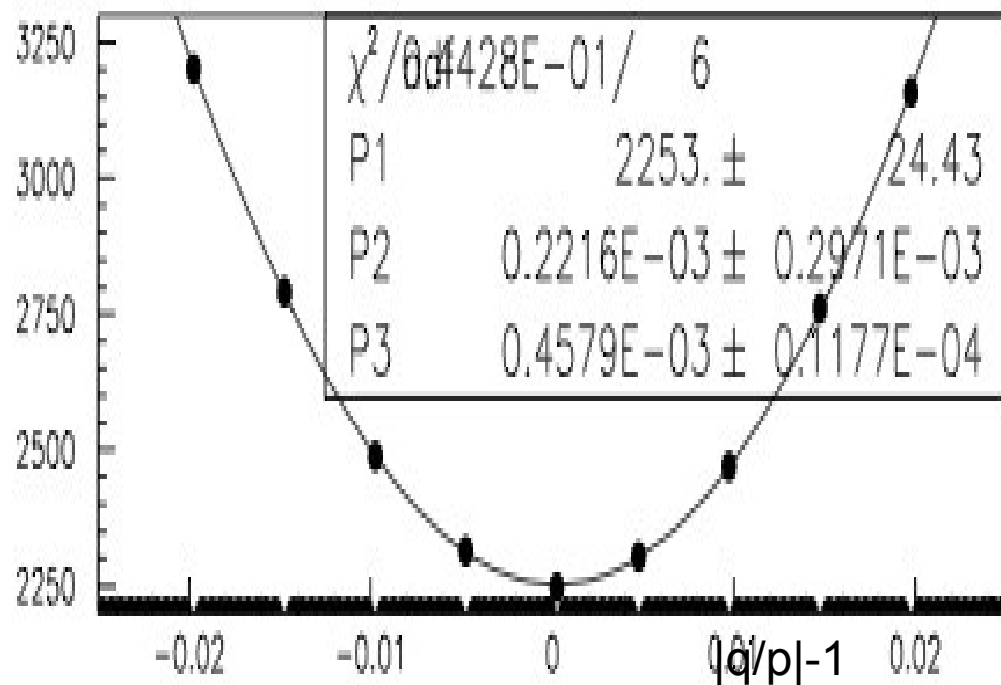


Status of the D^*lv q/p Analysis

Last Collaboration Meeting: end of a long story...

Martino 3/10/09



Bias completely removed from the SIG+BKG B^0+B^+ Global fit!
(Fixed Dtag event fraction)

In the following:

- B^0+B^+ results with free F_{dtag} ;
- Full BB + Continuum Preliminary Results.

Fit Strategy Optimization

- Btag & Dtag samples show different semileptonic asymmetries:

$$A_{sl}(B_{tag}) = -2(|q/p| - 1) \quad (\text{lepton \& kaon from different Bs})$$

$$A_{sl}(D_{tag}) = A_{sl}(B_{tag}) * \chi_d \quad (\text{lepton \& kaon from same B})$$

➔ q/p dependence of the Dtag Fraction

- Reconstruction Asymmetry from the B^0 tag+untag event sample:

$$A_{reco} = (N(l^+) - N(l^-)) / (N(l^+) + N(l^-))$$

➔ q/p dependence (single tag asymmetry)

- Dtag Fraction can be determined from the fit:

$(B^0/B^+) \times (\text{SIG/BKG}) \times (\text{Mix/Unmix}) \times (K^+/K^-) = 16$ parameters...

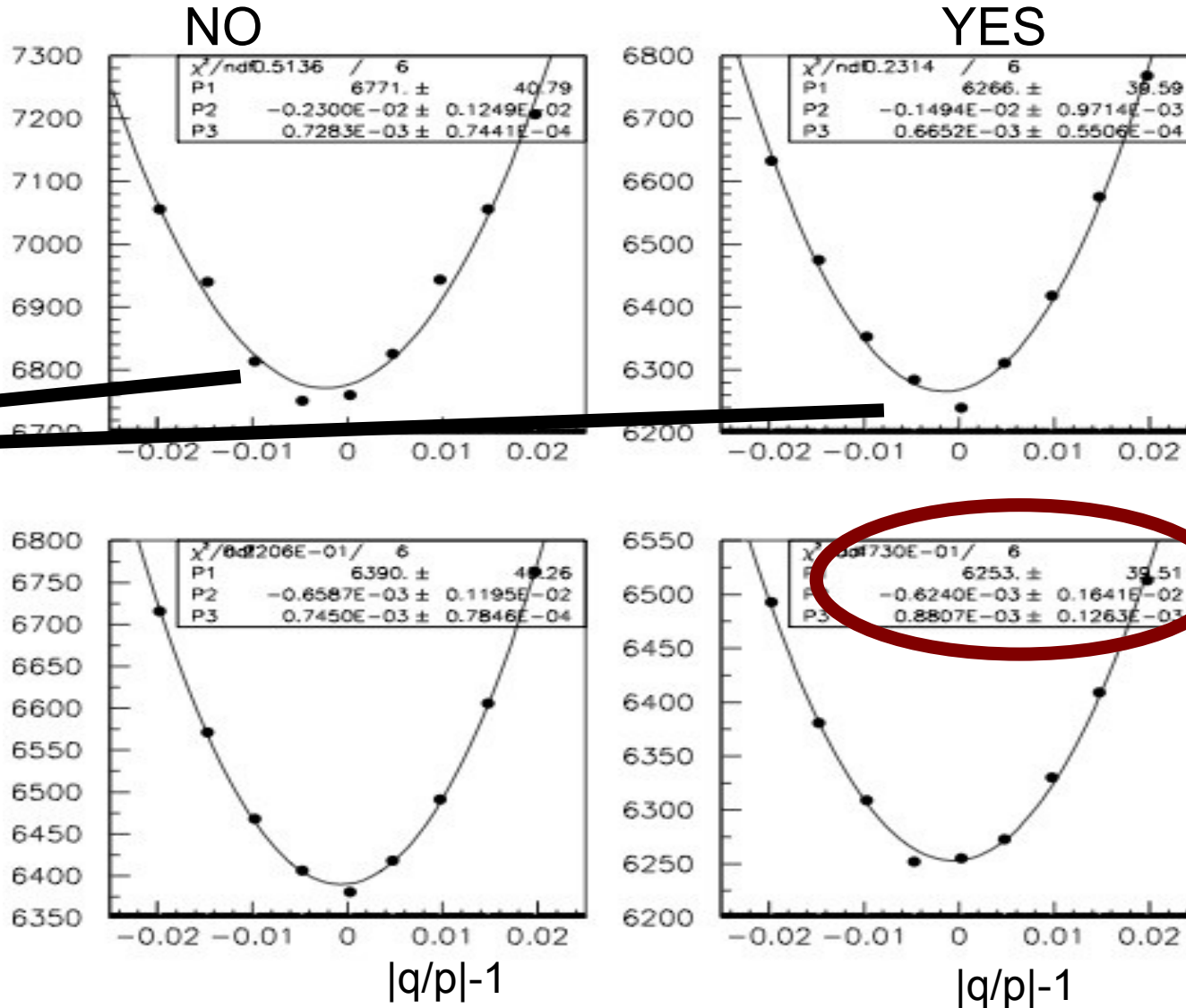
➔ Fix the N_{ntag} B^0/B^+ ratio (for $|q/p|=1$) for each category from MC and fit just the B^0 Dtag fractions.

$B^0 + B^+$ Results: Free FDtag

FDtag q/p correction:

Areco q/p
Correction:

NO
To be
optimized



No bias by
adding
both the
corrections

$B^0 + B^+$ + Continuum Results: Fix FDtag

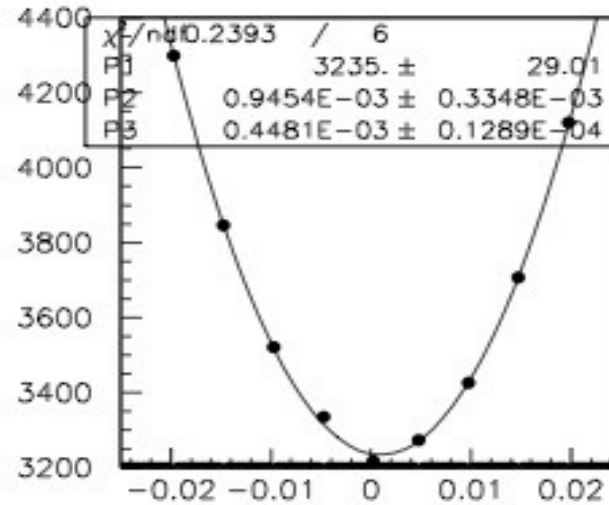
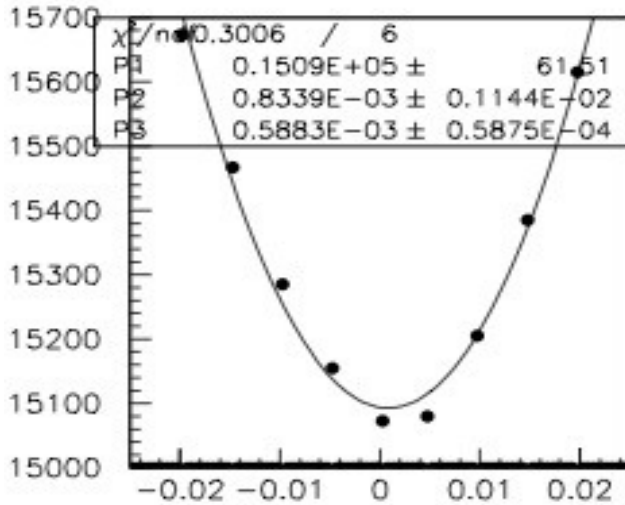
FDtag q/p correction:

Areco q/p
Correction:

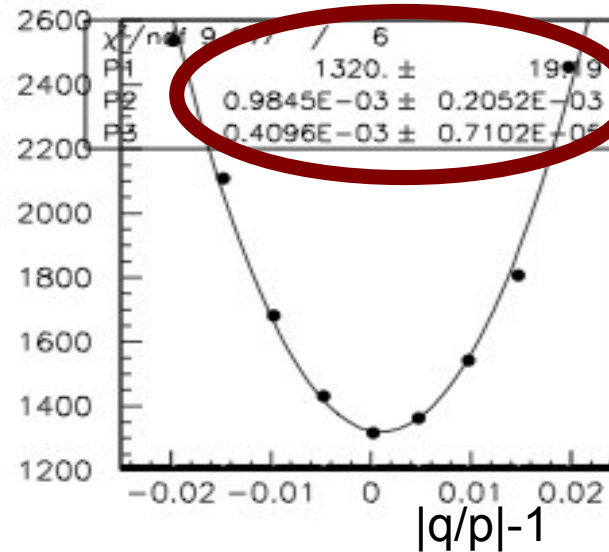
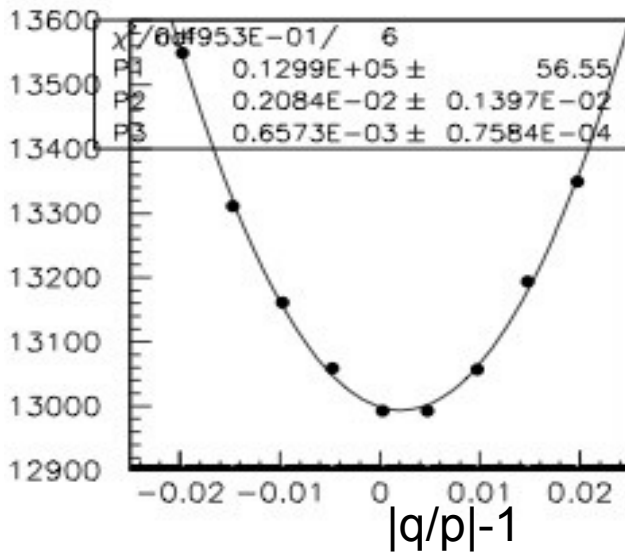
NO

YES

NO



YES



Bias under control

$B^0 + B^+$ + Continuum Results: Free FDtag

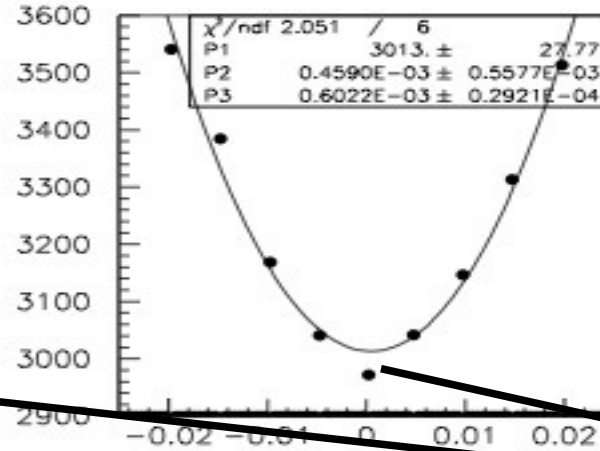
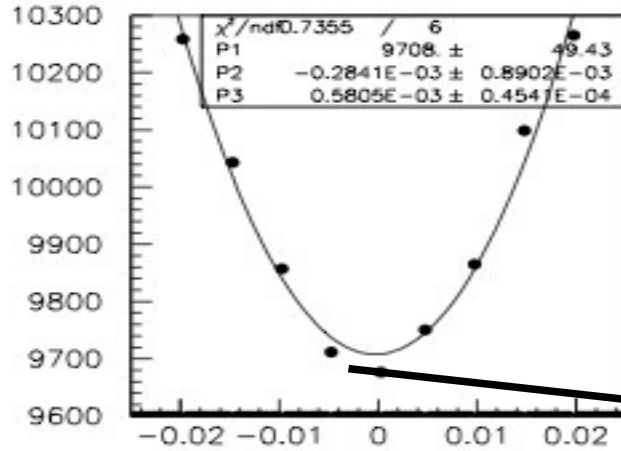
FDtag q/p correction:

Areco q/p
Correction:

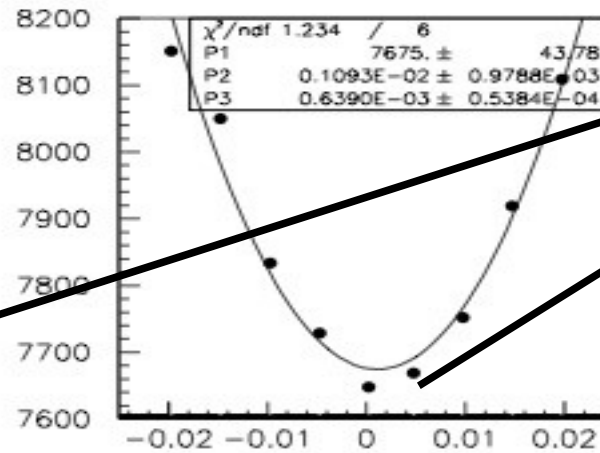
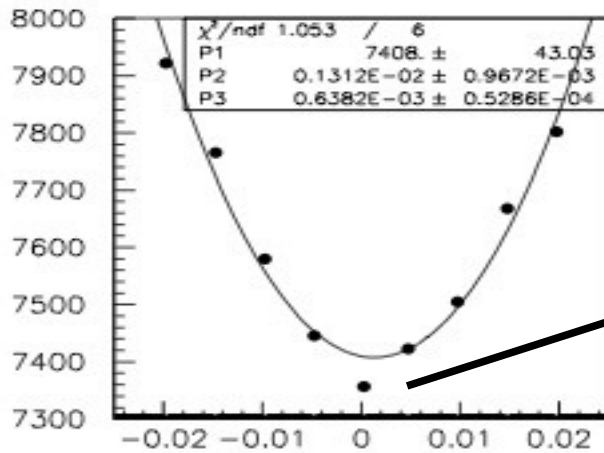
NO

YES

NO



YES



$|q/p|-1$

$|q/p|-1$

Final fit still to be optimized, however bias ≤ 1 per mil already at this stage

Conclusions

- Optimization study confirm the possibility to fit FDtag in the q/p fit;
- Inclusion of B^+ in the fit finalized, no analysis bias emerged;
- Inclusion of the Continuum almost finalized, bias under control.

• Next Steps

- Debug of SIG/BKG fraction vs mv^2 ;
- Toy MC Validation;
- Systematics;