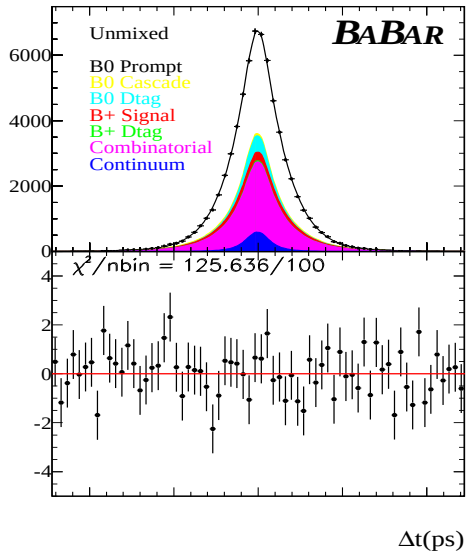
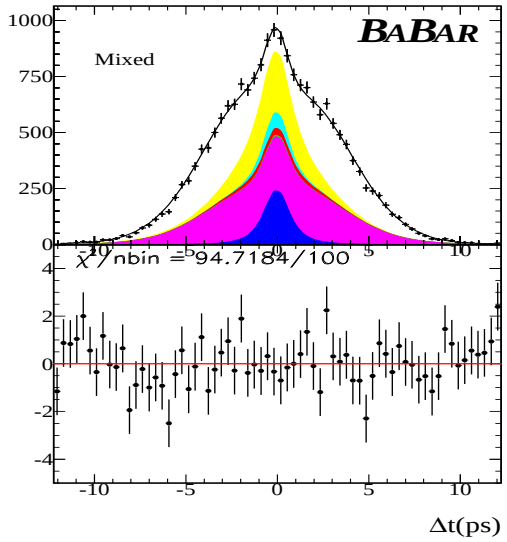
News on D* l ν

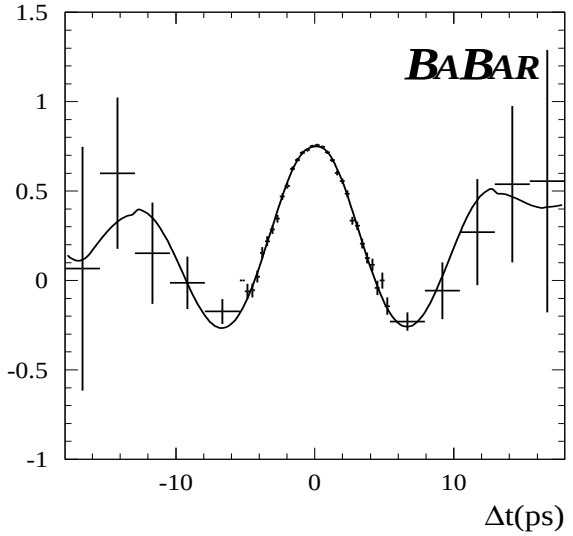
Martino 08/07/04

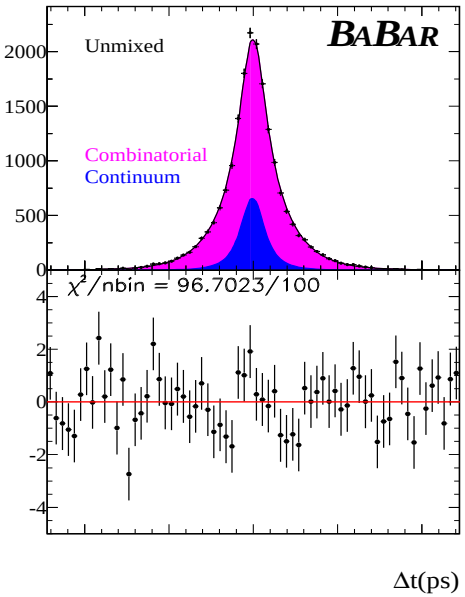
1) BAD 287 V16 + Conference Paper (BAD 959 V2) available
➔ Preliminary BLIND Results for Real Data;
➔ Systematic uncertainties almost completed;

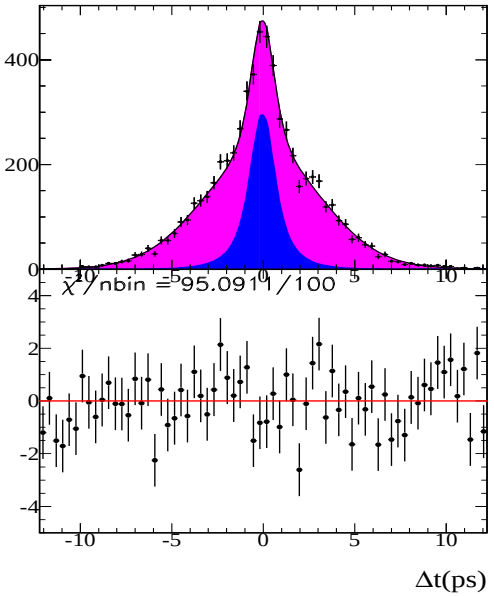
2) Toy MC: Preliminary Results

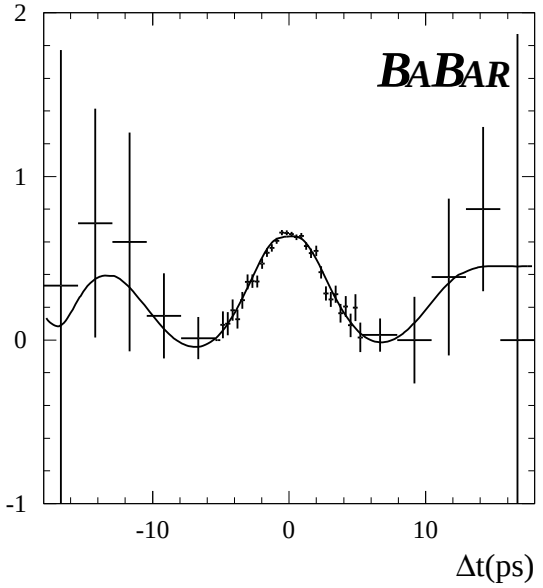












τ = xxxx +−0.0084 +−0.0195 ps

Δm= yyyy +−0.0043 +−0.0063 ps^{-1}

REAL DATA PRELIMINARY

Table 9: Systematic uncertainties.

Source	Variation	$\delta\tau_{B^0}$	$\delta\Delta m_d$
(a) $B\bar{B}$ Fraction	±2.3%	±0.0010	±0.0010
(b) Analysis Bias	-	±0.0136	±0.0015
(c) τ_{B^-}	1.61±0.018	±0.0019	±0.0010
(d) $D_{c\ell}$	0.65±0.08	±0.0053	±0.0005
(e) Z scale	-	±0.0060	±0.0020
(f) PEPII boost	-	±0.0015	±0.0005
(g) Alignment	-	±0.0056	±0.0030
(h) Beam Spot position	-	±0.0050	±0.0010
(i) a, ρ	-	±0.0025	±0.0015
(j) Binning	-	±0.0017	±0.0021
(k) Outlier	-	±0.0013	±0.0021
(l) Δt and $\sigma_{\Delta t}$ cut	-	±0.0076	±0.0032
Total		±0.0195	±0.0063

Not yet computed:

- Gexp resolution model for cascade leptons tag−side
- Different cut in the Selection Likelihood Variable $\chi(l, \pi^*, \Pi V)$
- Alignment from Exclusive measurement

- Analysis Bias:

½ the difference between the MC Global fit results and the MC thuth:

$\Delta\tau = +0.0273 +- 0.0136$ ps

$\Delta\delta m = -0.0031 +- 0.0015$ ps^{-1}

Toy MC

- 90 "experiments" generated starting from the fitted (Δt, $\sigma\Delta t$) PDFs of the various components in the Global MC fit:

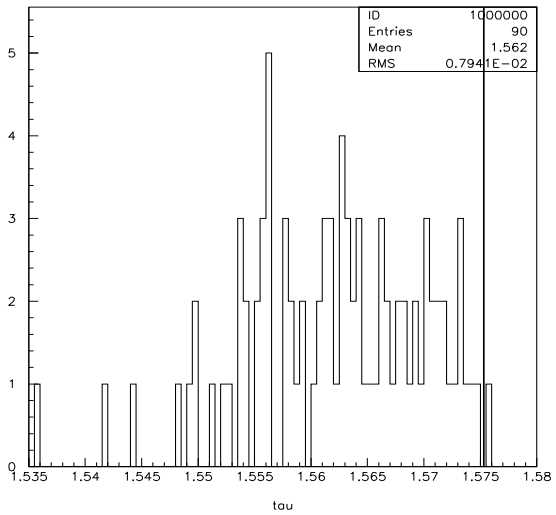
τ = 1.575+−0.006 ps

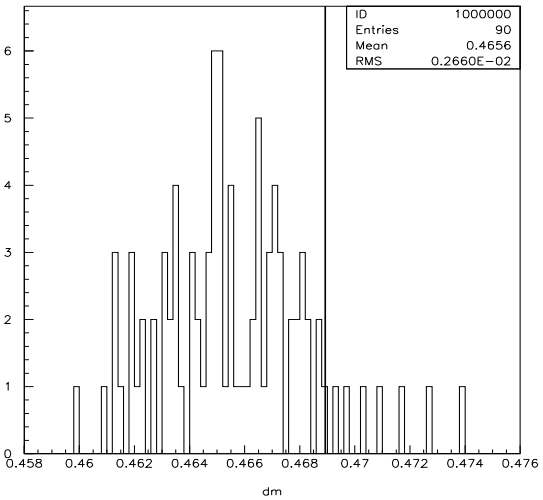
Δm = 0.469+−0.002 ps^{-1}

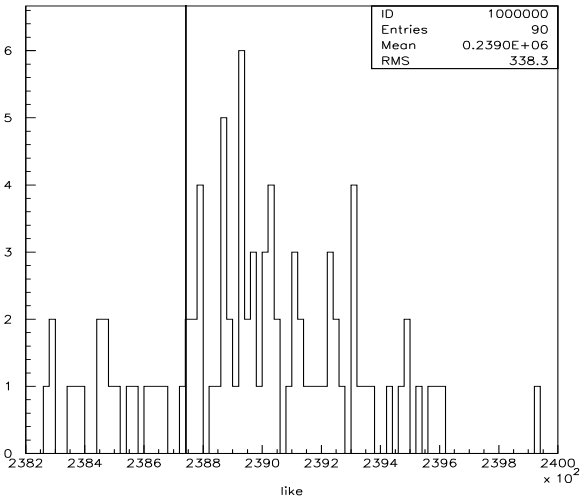
- For each experiment, the following kind of fit were performed to check the analysis procedure:
  1) B^0 Prompt + Cascade tag−side leptons;
  2) B^0 Prompt + Cascade tag+decay side leptons;
  3) B^0+B^+ Resonant Sample;
  4) Global Fit (Resonant + Combinatoric)

- The average τ and Δm are compared with the generated ones;
- The resulting RMS is compared with the statistical error of the corresponding fit on MC

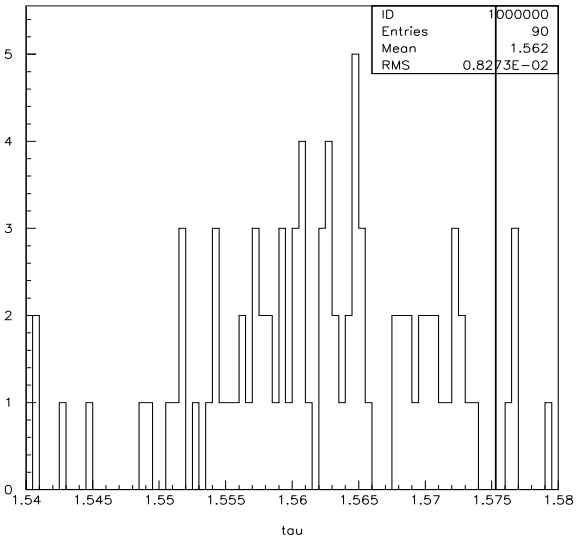
1) B^0 prompt+cascade (tag−side) leptons

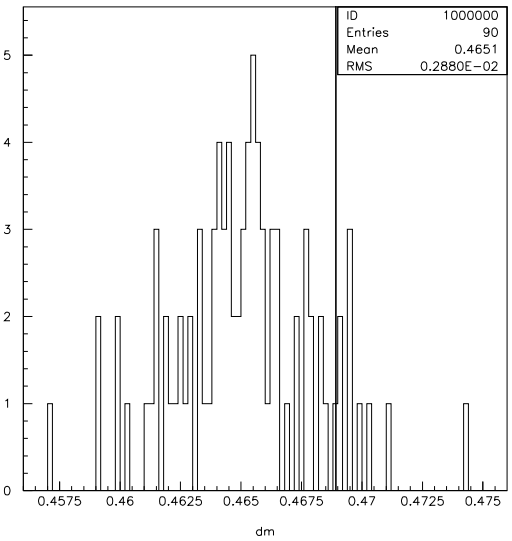


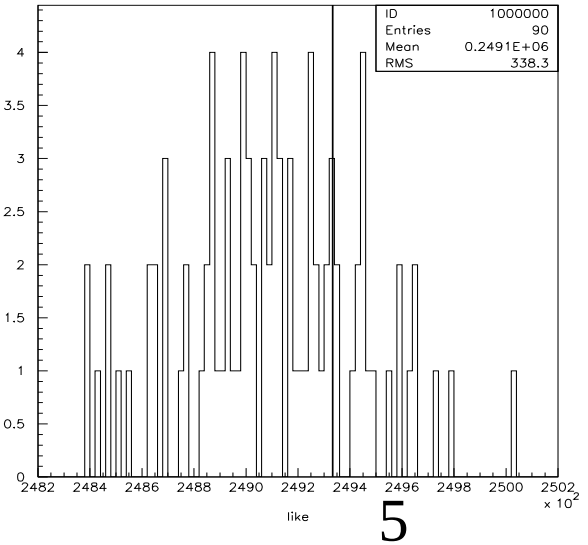




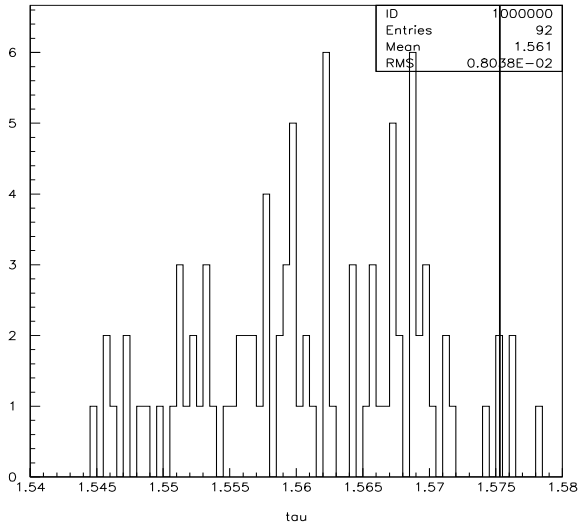
2)B^0 prompt+ cascade (tag+decay side) leptons

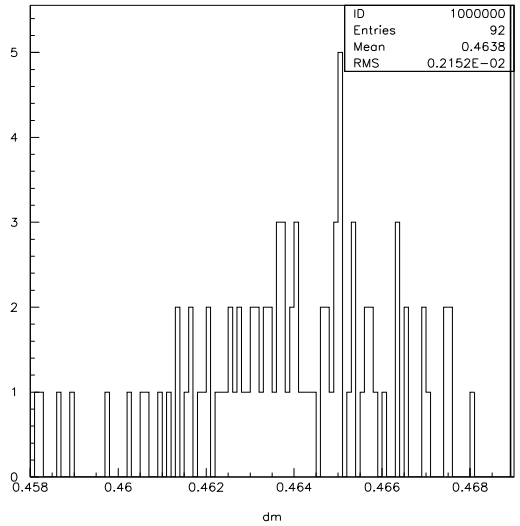


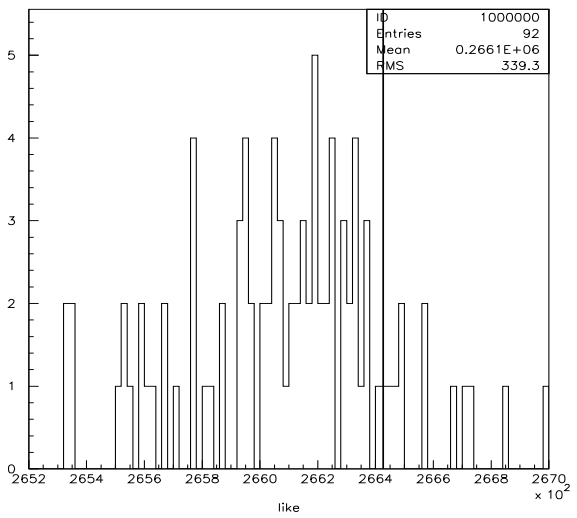




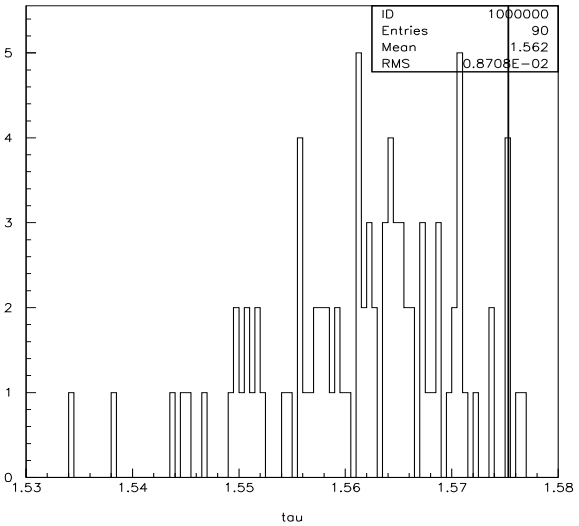
3) B^0+B^+ Resonant Sample

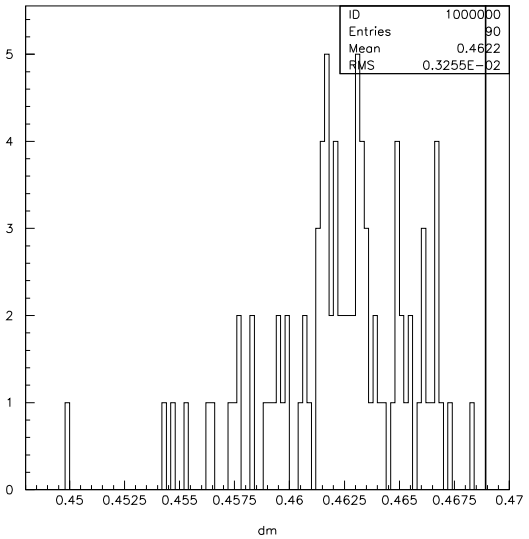


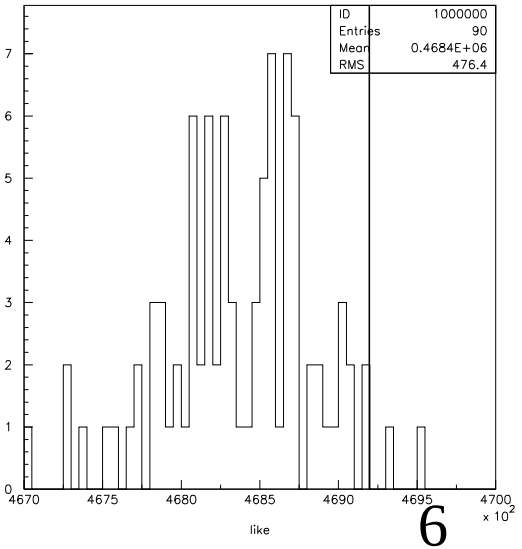




4) Global MC Fit







1)	(g)	1.5607 ± .0060	0.4756 ± .0027	0.1776 ± .0015	96.8 ± .2	7.3 ± .2	-	-0.291
	(h)	-	-	-	-	-	0.36 ± .01	
2)	(i)	1.5650 ± .0062	0.4740 ± .0022	0.1775 ± .0011	97.1 ± .5	7.5 ± .3	0.35 ± .02	-0.369
3)	(j)	1.5613 ± .0051	0.4730 ± .0023	0.1765 ± .0014	97.1 ± .2	7.5 ± .2	0.37 ± .03	0.097
4)	(k)	1.5753 ± .0061	0.4689 ± .0019	0.1765 ± .0012	96.9 ± .2	7.7 ± .2	0.22 ± .01	-0.081

Generated τ=1.5753 ps

Generated Δm=0.4689 ps^{-1}

	$\langle\tau\rangle_{toy}$ +−rms	$\delta\tau(stat)_{fit}$	$\langle\Delta m\rangle_{toy}$ +−rms	$\delta\Delta m(stat)_{fit}$
1)	1.562+−.0079	.0060	0.4656+−.0027	.0027
2)	1.562+−.0083	.0062	0.4651+−.0029	.0022
3)	1.561+−.0080	.0051	0.4638+−.0022	.0023
4)	1.562+−.0087	.0061	0.4622+−.0033	.0019

- Constant "fit bias" $\Delta\tau$=−0.013 ps : the +0.014ps difference between the corresponding fits 3) and 4) is due to the BKG PDF Parameterization;
- $\Delta\delta m$=−0.0033/−0.0067 depending on the fit;
- $\delta\tau$(stat) seems to be underestimated;
- $\delta\Delta m$(stat) ~OK (except the Global fit one)

Toy for the Real Data Fit coming soon to check the statistical error and bias