

Jpsi vertex studies. Cinvestav-Report

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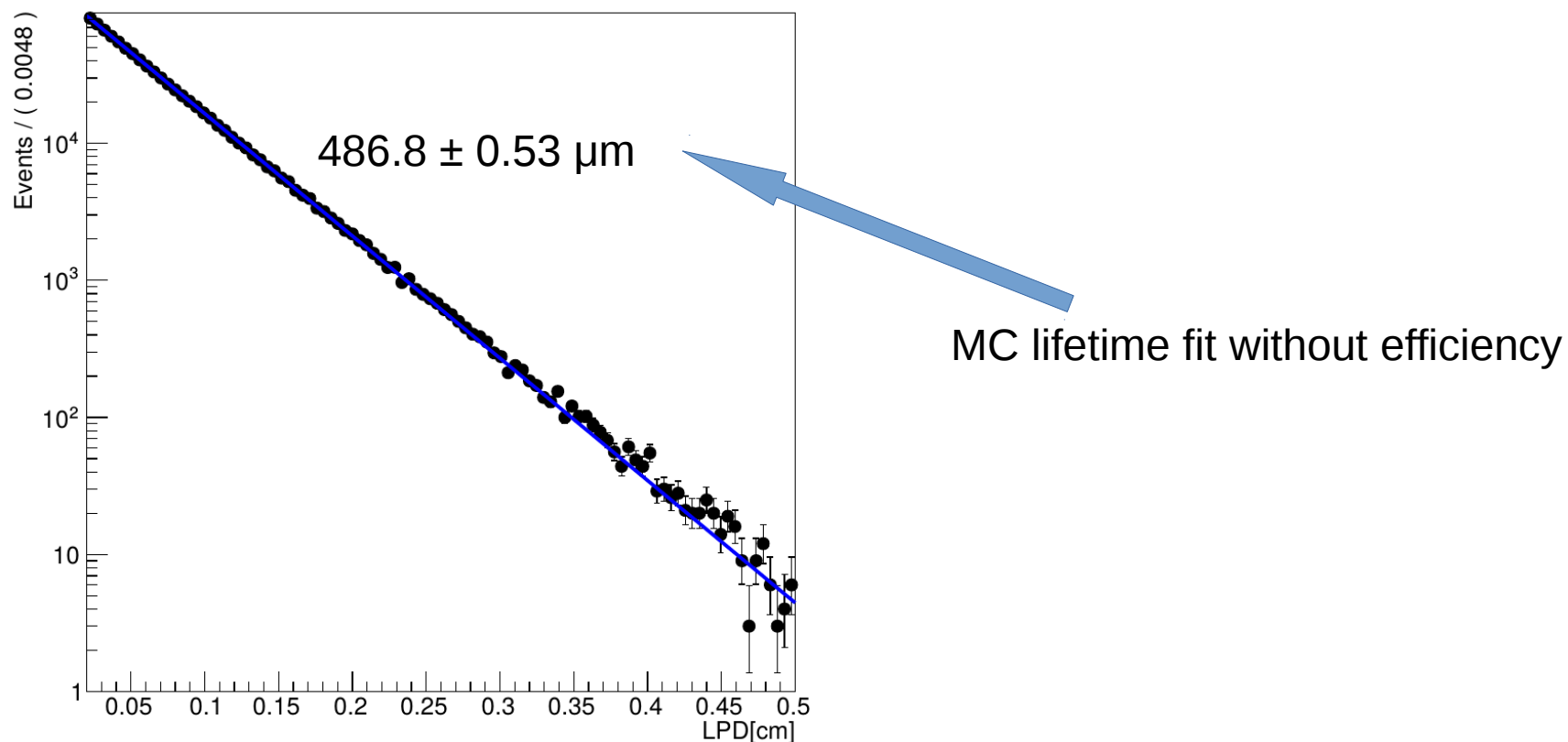
Introduction

- In the ARC-authors meeting (28-09-2016) they asked us what about $J\psi$ vertex in the MuoniaParked data. we make this test again
 - 1) Using the reference channel, B^+ .
 - 2) For the others channels

1) B+ channel

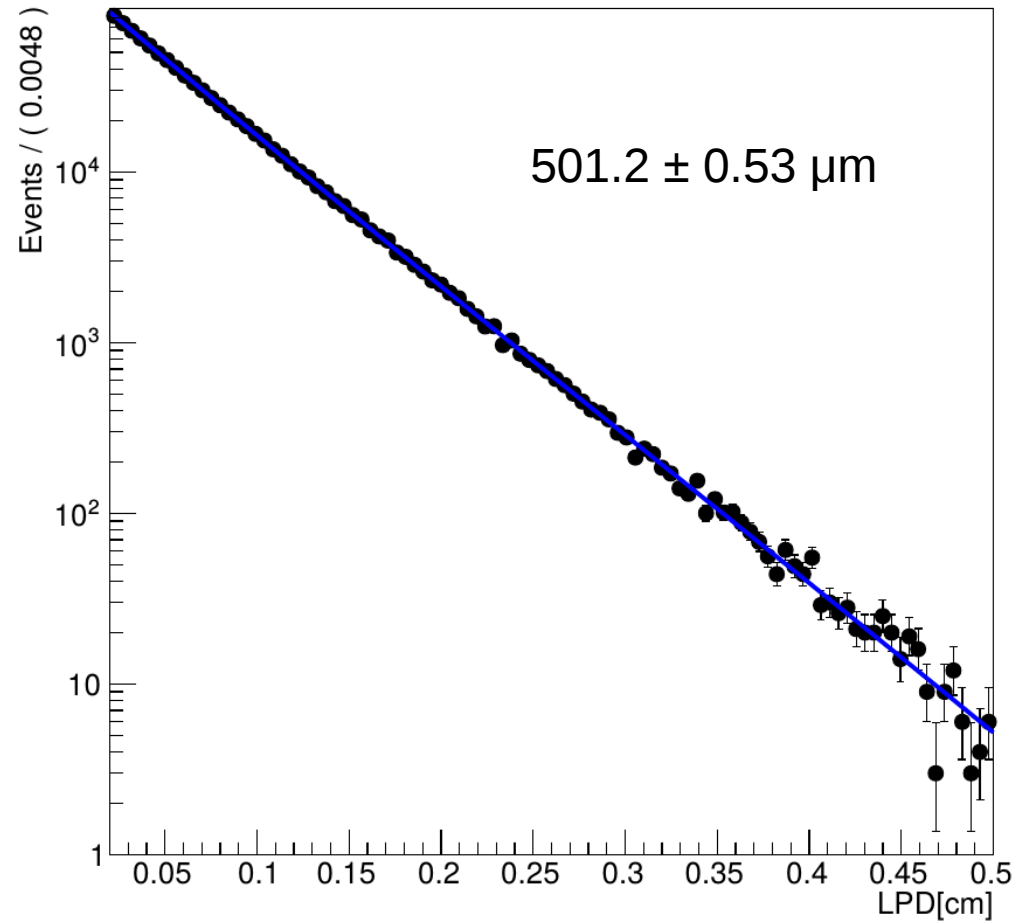
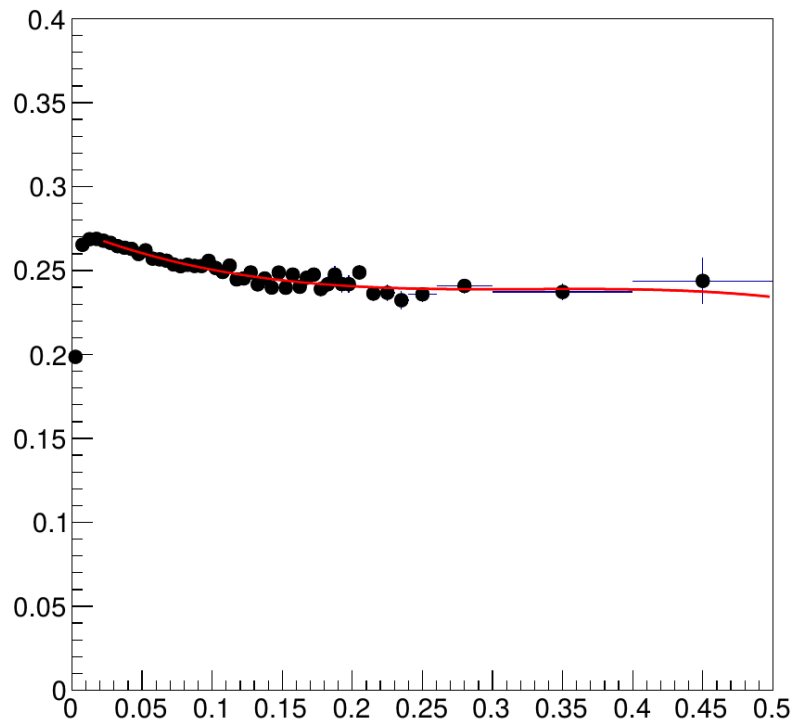
We perform the lifetime measurement by using the decay vertex of the Jpsi instead of the decay vertex of the B.

We follow the same process like in the nominal analysis. We take the efficiency from MC and then use it in data.



MC lifetime fit using efficiency

efficiency



MC lifetime input was 500.9 μm

$B^+ \rightarrow J/\psi K^+$ lifetime. Without efficiency

Dataset	ct (μm)
B	480.78 ± 1.7
C	477.4 ± 1.2
D	476.74 ± 1.1

$B^+ \rightarrow J/\psi K^+$ lifetime. Using efficiency

Dataset	ct (μm)
B	494.8 ± 1.8
C	491.1 ± 1.2
D	490.5 ± 1.2

Jpsi vertex Vs B vertex. B+

lifetime using Jpsi vertex

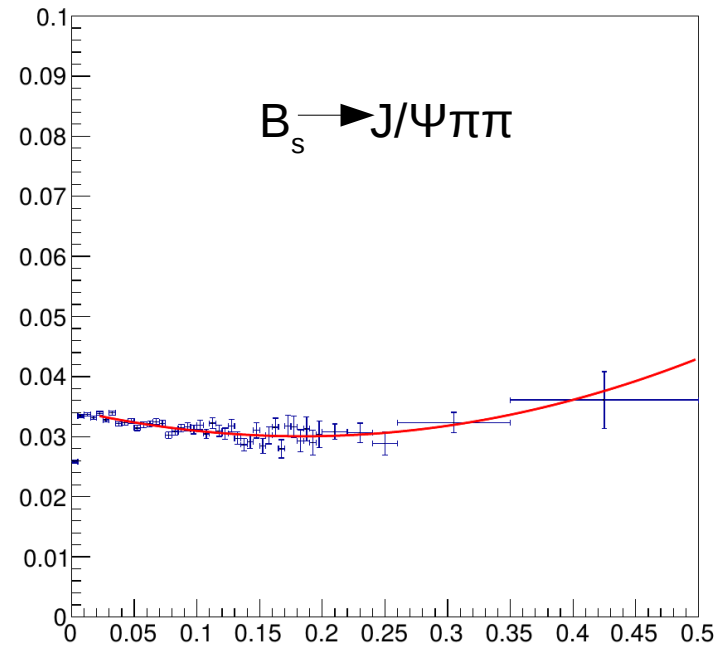
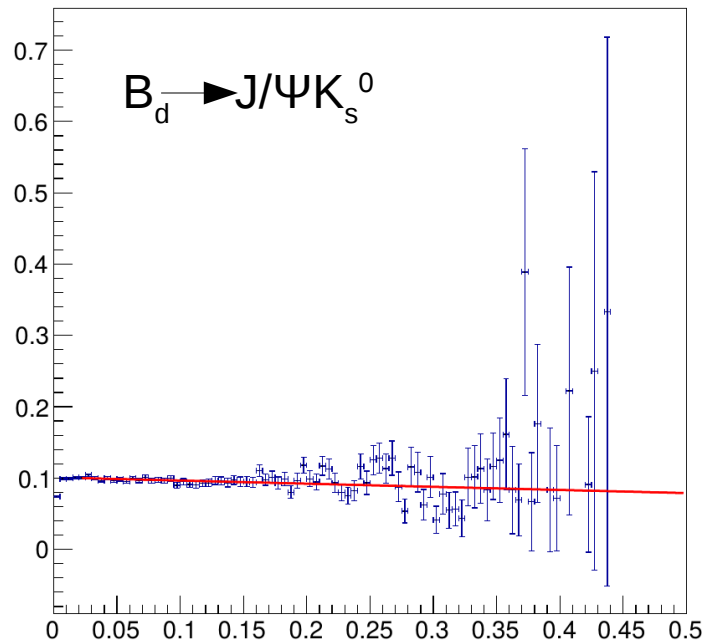
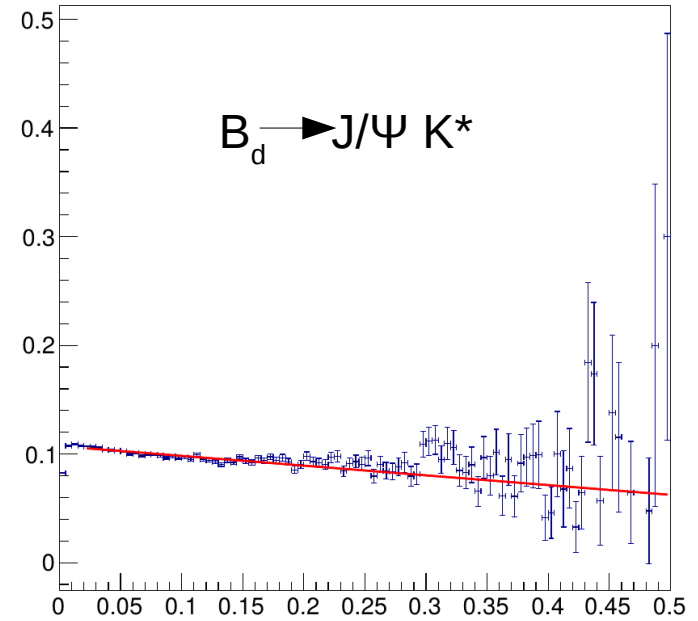
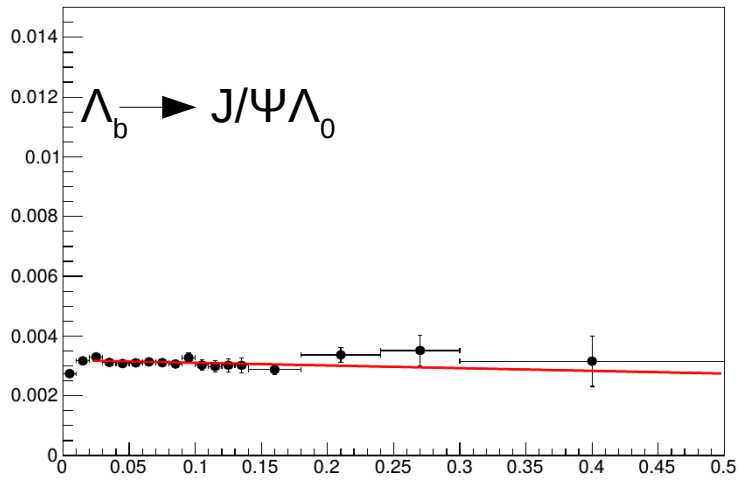
Dataset	ct (μm)
B	494.8 ± 1.8
C	491.1 ± 1.2
D	490.5 ± 1.2

lifetime using B vertex

B^+ Lifetime fit values for different dataset

Dataset	ct (μm)
B	494.9 ± 1.8
C	491.4 ± 1.1
D	490.5 ± 1.2

2) We follow the same process for all channels. Here the efficiencies



2) $\Lambda_b \rightarrow J/\psi\Lambda_0$, $B_d \rightarrow J/\psi K^*$,
 $B_d \rightarrow J/\psi K_s^0$ and $B_s \rightarrow J/\psi\pi\pi$ lifetime
 using efficiency. J/ψ vertex

Channel	ct (μm)
$\Lambda_b \rightarrow J/\psi\Lambda_0$	442.2 ± 8.4
$B_d \rightarrow J/\psi K_s^0$	456.3 ± 2.8
$B_d \rightarrow J/\psi K^*$	453.9 ± 1.6
$B_s \rightarrow J/\psi\pi\pi$	501.9 ± 10.4

Jpsi vertex Vs B vertex

lifetime using Jpsi vertex

Channel	ct (μm)
$\Lambda_b \rightarrow J/\psi\Lambda_0$	442.2 ± 8.4
$B_d \rightarrow J/\psi K_s^0$	456.3 ± 2.8
$B_d \rightarrow J/\psi K^*$	453.9 ± 1.6
$B_s \rightarrow J/\psi\pi\pi$	501.9 ± 10.4

lifetime using B vertex

Channel	ct (μm)
$\Lambda_b \rightarrow J/\psi\Lambda_0$	442.1 ± 8.1
$B_d \rightarrow J/\psi K_s^0$	455.4 ± 2.7
$B_d \rightarrow J/\psi K^*$	453.8 ± 1.6
$B_s \rightarrow J/\psi\pi\pi$	504.3 ± 10.3

summary

We did not find any statistically significant difference between the measurements using different decay vertex.