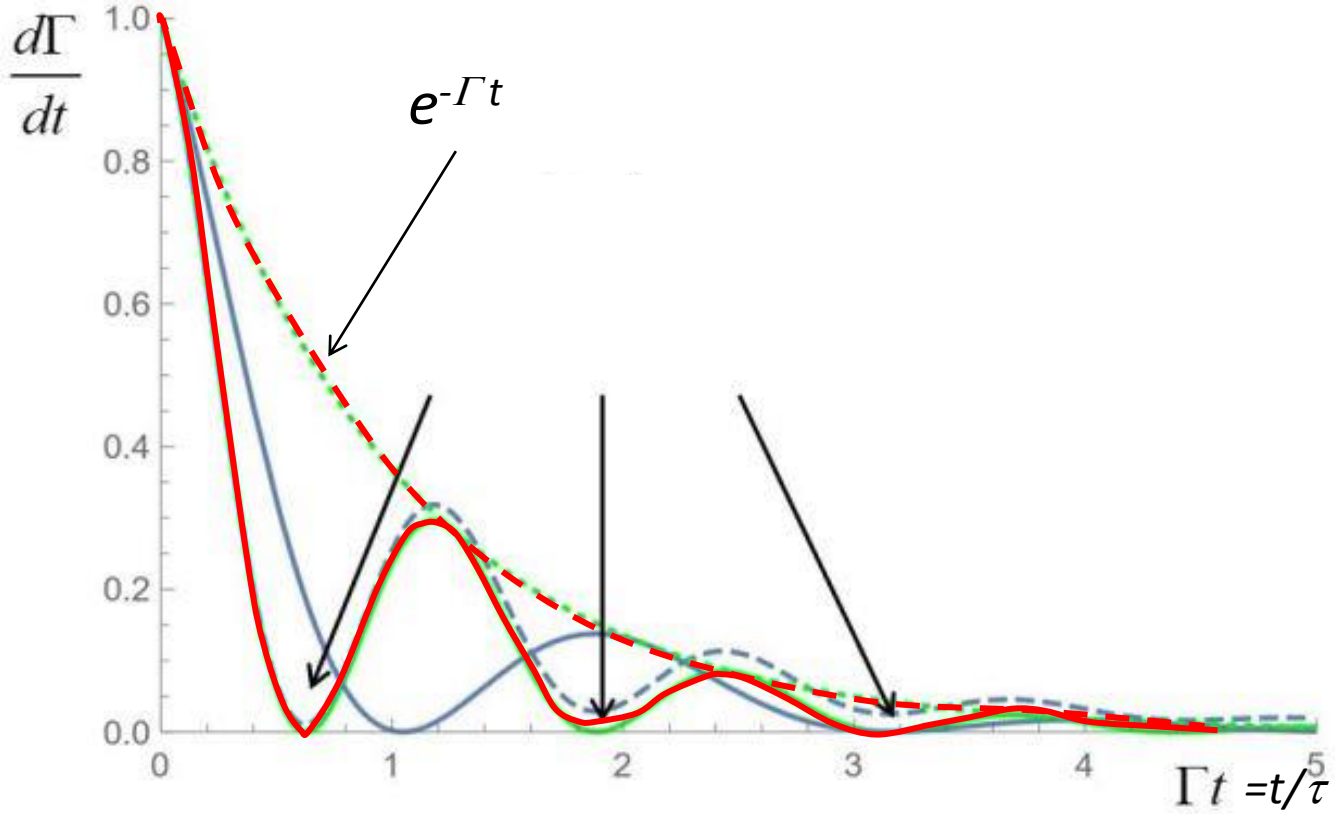
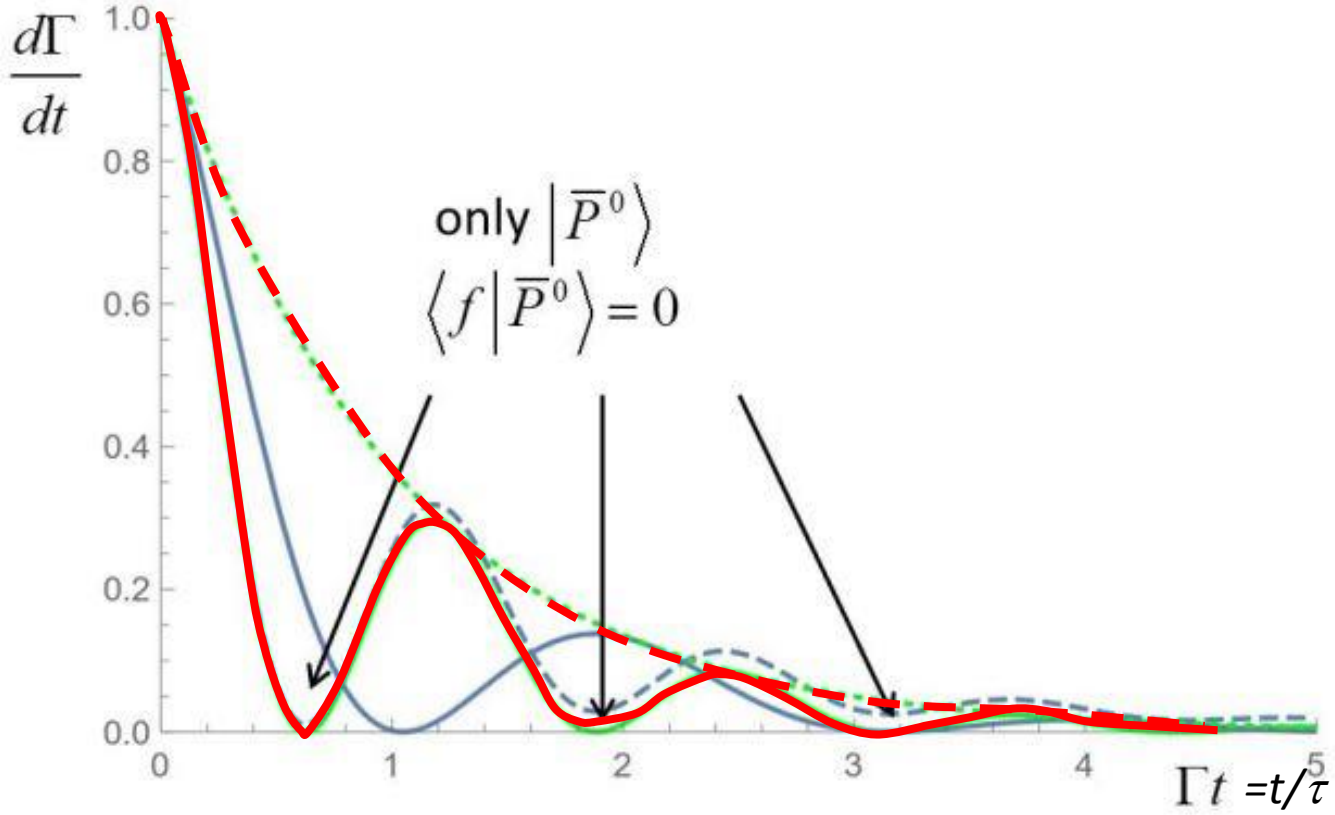
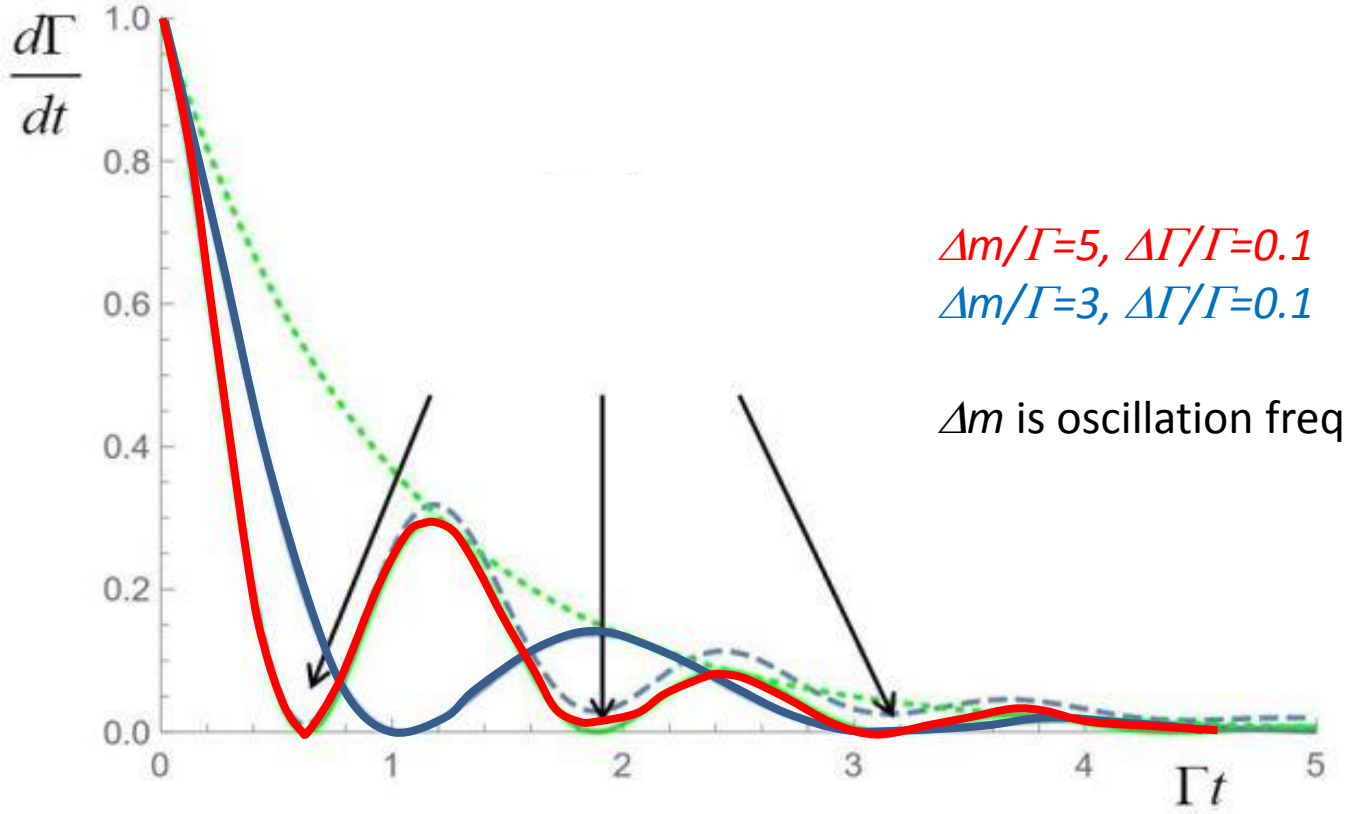
$$\frac{d\Gamma(P^0 \to f)}{dt} = \mathcal{N}_+ e^{-\Gamma t}\left[\cosh\left(\frac{\Delta\Gamma t}{2}\right) + \cos(\Delta m t)\right]|\langle f|P^0\rangle|^2$$



$$\frac{d\Gamma(P^0 \to f)}{dt} = \mathcal{N}_+ e^{-\Gamma t}\left[\cosh\left(\frac{\Delta\Gamma t}{2}\right) + \cos(\Delta m t)\right]|\langle f|P^0\rangle|^2$$



$$\frac{d\Gamma(P^0 \to f)}{dt} = \mathcal{N}_+ e^{-\Gamma t}\left[\cosh\left(\frac{\Delta\Gamma t}{2}\right) + \cos(\Delta m t)\right]|\langle f|P^0\rangle|^2$$



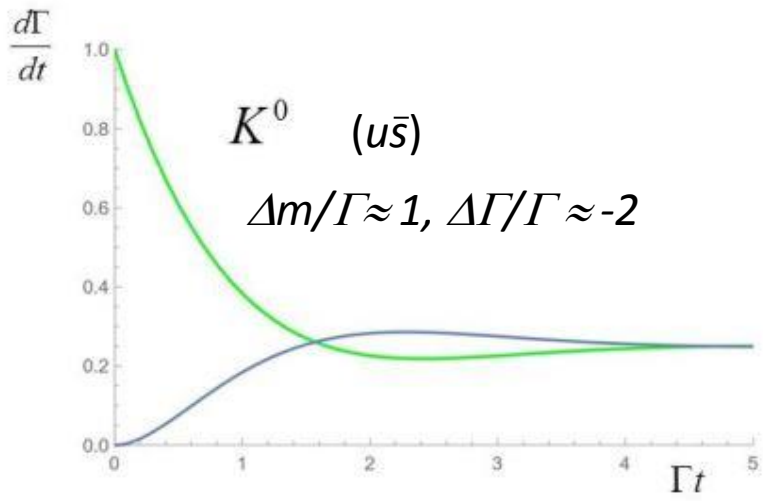
Δm/Γ=5, ΔΓ/Γ=0.1
Δm/Γ=3, ΔΓ/Γ=0.1

Δm is oscillation frequency

$d\Gamma(P^0 \to f)/dt$

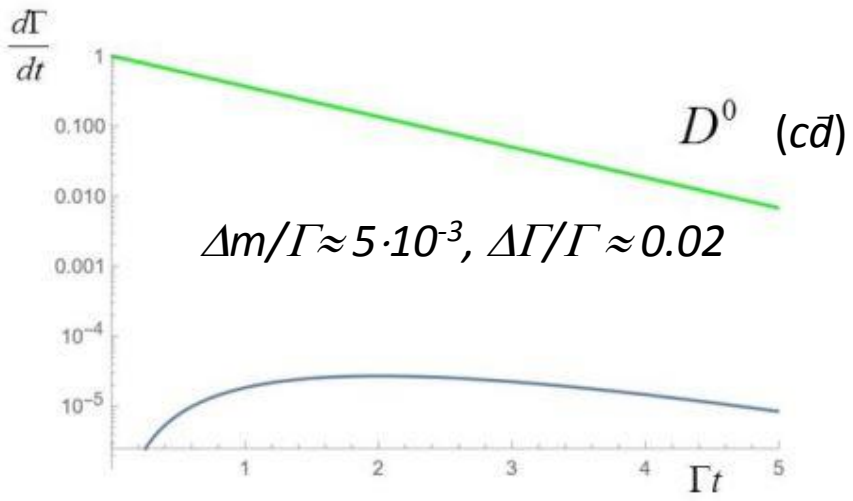
for an initially produced P^0

$d\Gamma(\bar{P}^0 \to \bar{f})/dt$



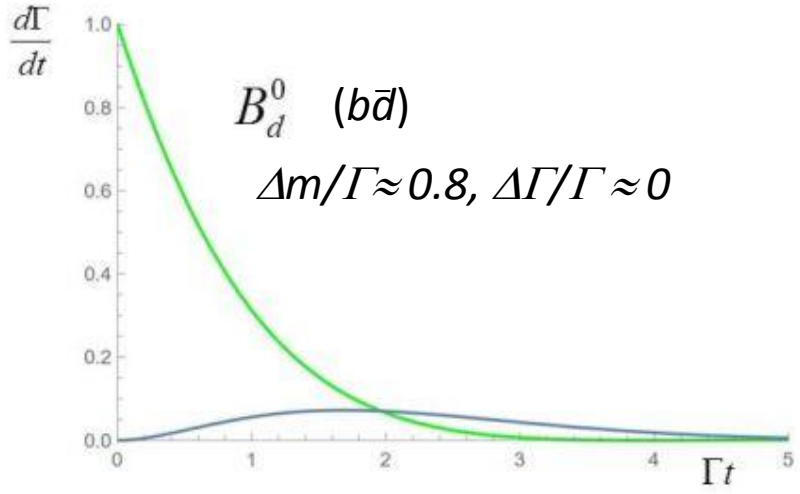
K^0 $(u\bar{s})$

$\Delta m/\Gamma \approx 1,\ \Delta\Gamma/\Gamma \approx -2$



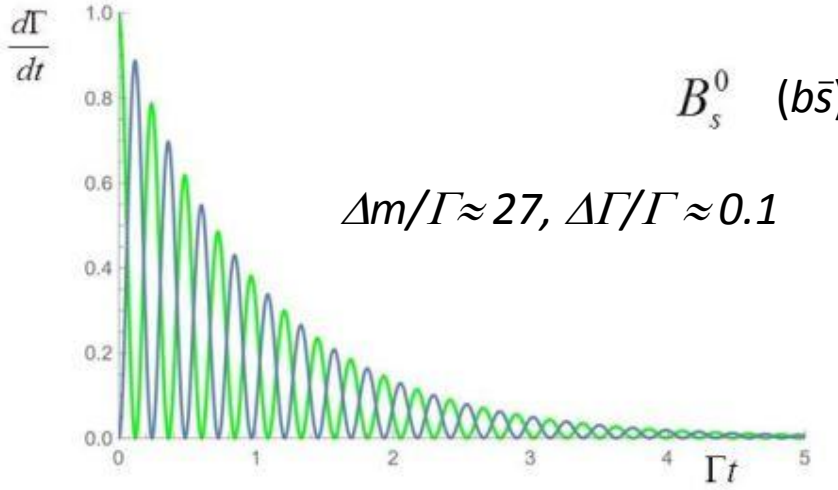
D^0 $(c\bar{d})$

$\Delta m/\Gamma \approx 5 \cdot 10^{-3},\ \Delta\Gamma/\Gamma \approx 0.02$



B_d^0 $(b\bar{d})$

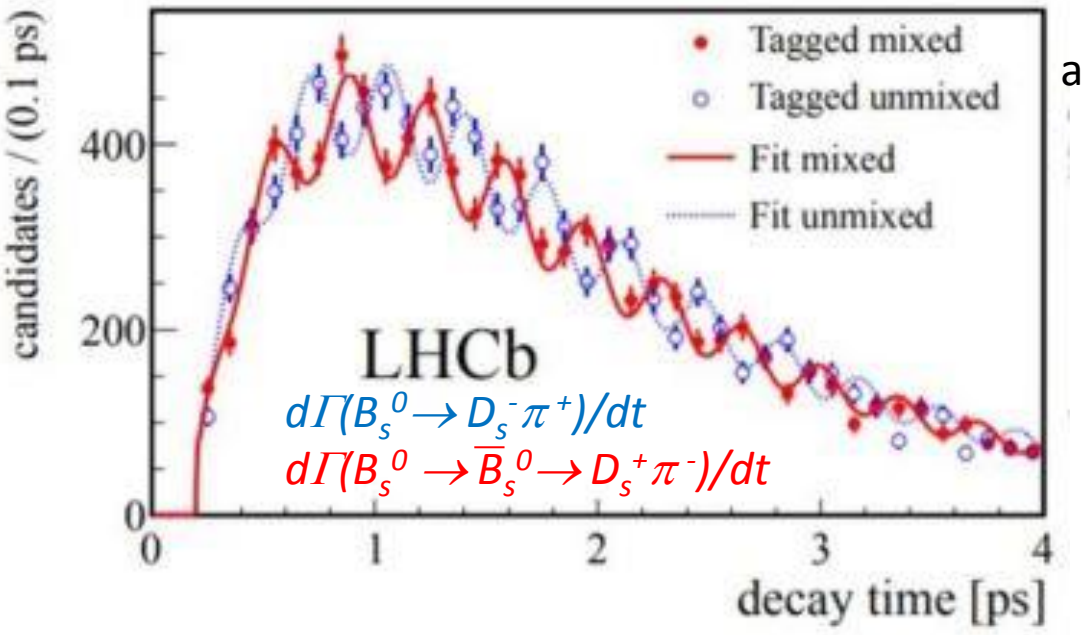
$\Delta m/\Gamma \approx 0.8,\ \Delta\Gamma/\Gamma \approx 0$



B_s^0 $(b\bar{s})$

$\Delta m/\Gamma \approx 27,\ \Delta\Gamma/\Gamma \approx 0.1$

R. Aaij et al. (LHCb Coll.), New J. Phys. 15, 053021 (2013)

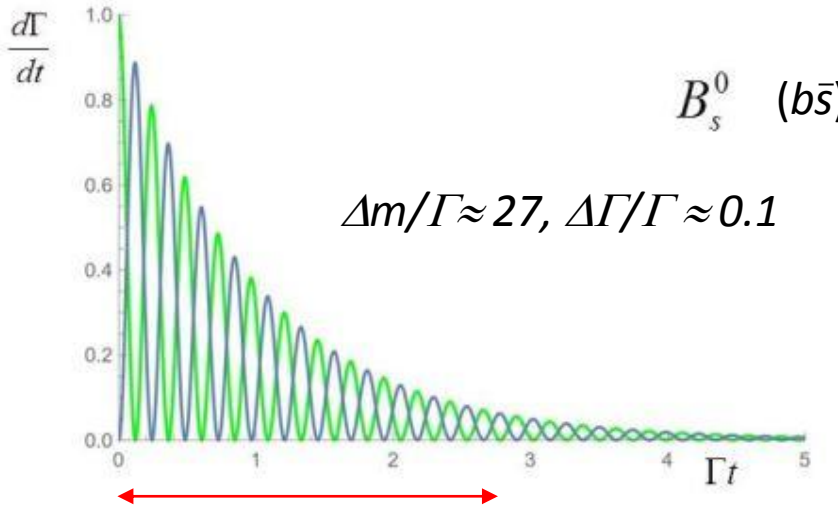


actual measurement

$d\Gamma(P^0 \to f)/dt$

for an initially produced P^0

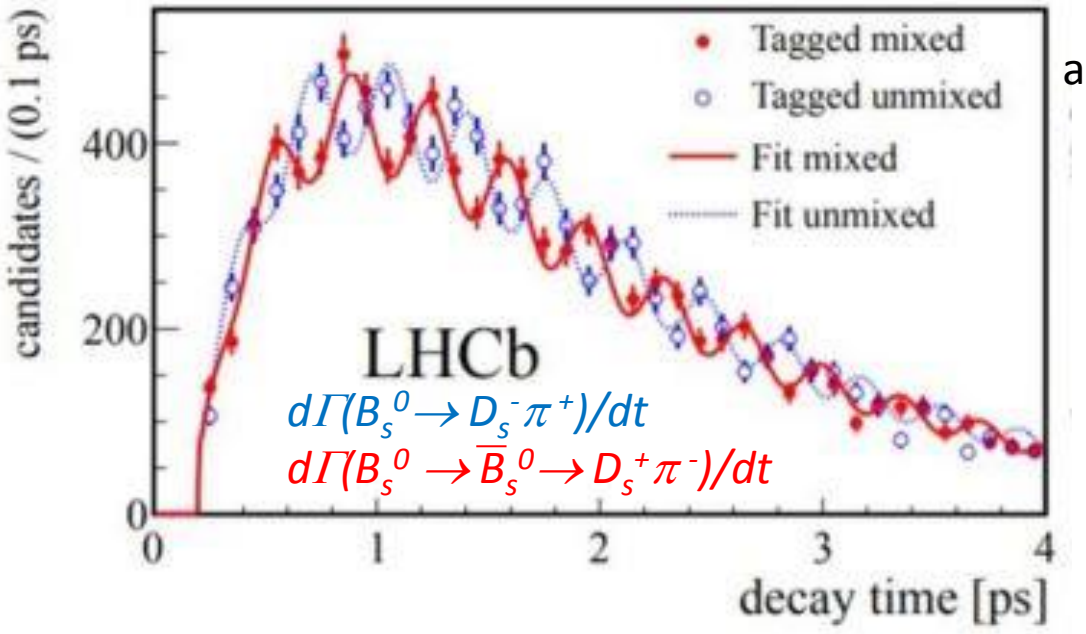
$d\Gamma(\overline{P^0} \to \overline{f})/dt$



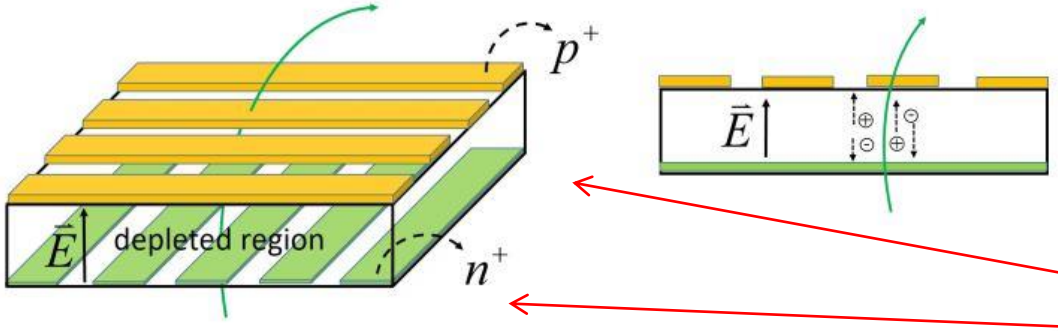
B_s^0 $(b\bar{s})$

$\Delta m/\Gamma \approx 27,\ \Delta\Gamma/\Gamma \approx 0.1$

R. Aaij et al. (LHCb Coll.), New J. Phys. 15, 053021 (2013)



actual measurement



semiconductor detectors

$\sigma(r,\phi) \sim \mathcal{O}(10\ \mu m)$

$$\mathcal{A}_{\text{flav}} = \left(N_{\text{unmix}}(t) - N_{\text{mix}}(t)\right) / \left(N_{\text{unmix}}(t) + N_{\text{mix}}(t)\right) = \frac{\cos(\Delta m t)}{\cosh\left(\frac{\Delta\Gamma t}{2}\right)}$$

$\approx \cos(\Delta m t)$

$\Delta\Gamma \sim 0$

$\mathcal{A}_{\text{flav}}$ for B_d^0

B. Aubert et al. (BaBar Coll.), Phys. Rev. Lett. 88, 221803 (2002)