Token 161 46

$$a \longrightarrow b + c$$

$$\psi(\vec{r}, t) = \psi(\vec{r})\, e^{-iE_0 t}\, e^{-\frac{\Gamma}{2} t}$$

$$\Gamma = \frac{1}{\tau}$$

$$H = \underline{\underline{M}} - \frac{i}{2}\underline{\underline{\Gamma}} \qquad \begin{pmatrix} 0 & \Gamma \\ \Gamma & 0 \end{pmatrix}$$

$H \longrightarrow \mu^+\mu^-$

W^+W^-

Z^0Z^0

$b\bar{b}$ 58%

$c\bar{c}$

$\gamma\gamma$ 1/1000

$$dN = -\lambda\, dt\, N$$
$$= -(\Gamma\, dt)\, N(t)$$

$$a \longrightarrow \begin{matrix} c_1 & \Gamma_1 \\ c_2 & \Gamma_2 \\ c_3 & \Gamma_3 \\ c_4 & \Gamma_4 \\ c_5 & \Gamma_5 \end{matrix}$$

larghezza totale di decadim. $\Gamma = \sum_i \Gamma_i$

Branching Fraction ratio $BF(a \to c_i) = \dfrac{\Gamma_i}{\Gamma_{tot}} = \dfrac{\Gamma_i}{\sum \Gamma_i}$

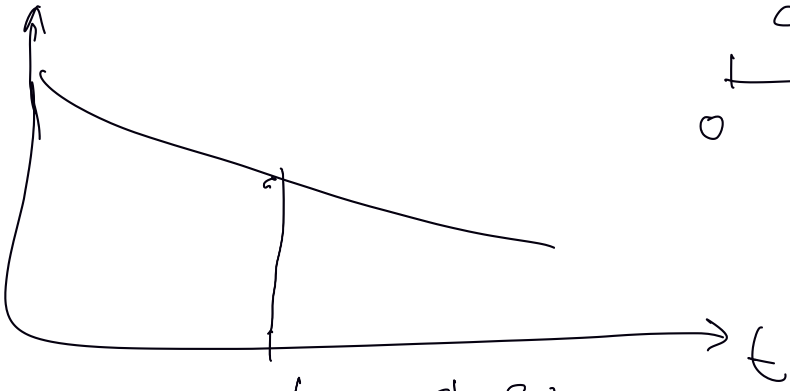
Γ in MeV

40 canali:

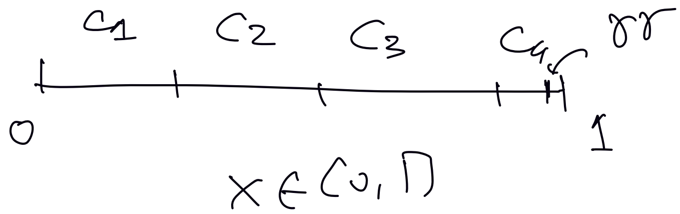
$\sum_i BF(a \to c_i) = 90\% \Rightarrow \exists\; a \to X$

$$\frac{\Gamma_{mis}}{\Gamma_{th}} = \mu = 1 \pm \underset{\sigma_{stat}}{0.02} \pm \underset{\substack{\sigma_{sist} \\ exp}}{0.01} \pm \underset{\sigma_{th}}{0.05}$$

$$\tau = \frac{1}{\Gamma_{tot}} = \frac{1}{\sum_i \Gamma_i}$$



t_1 estrazione casuale.



$$\psi(\vec{r},t) = \psi(\vec{r})\, e^{-iE_0 t} e^{-\frac{\Gamma}{2}t}$$

$H = H_0 + H_I$

$E_0 = m$ a riposo nel rif. solidale con a

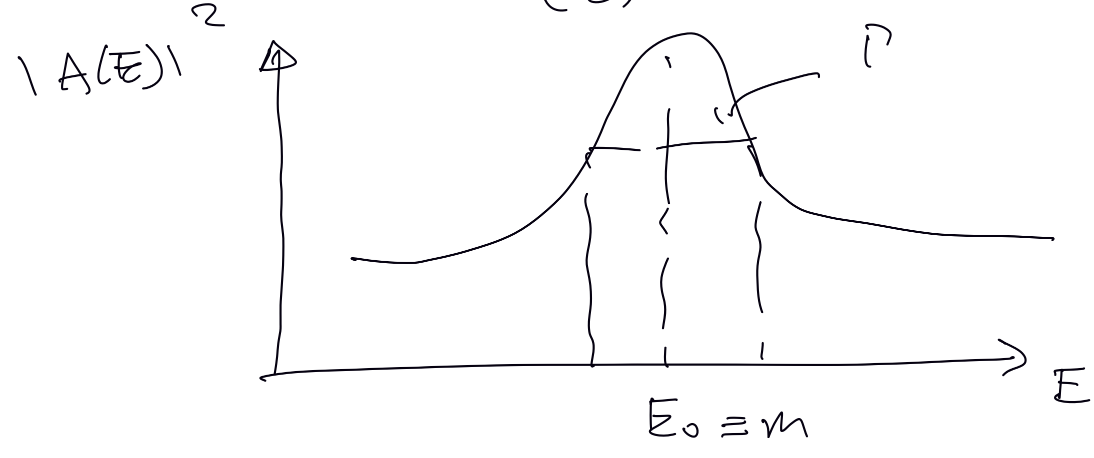
$$A(E) = \frac{C}{2\pi} \int_0^{\infty} dt'\, e^{+iEt'} e^{-iE_0 t'} e^{-\frac{\Gamma}{2}t'}$$

$$|A(E)|^2 dE = P(E, E+dE)$$

$$A(E) = \frac{C}{2\pi} \frac{1}{i(E-E_0) - \frac{\Gamma}{2}}$$

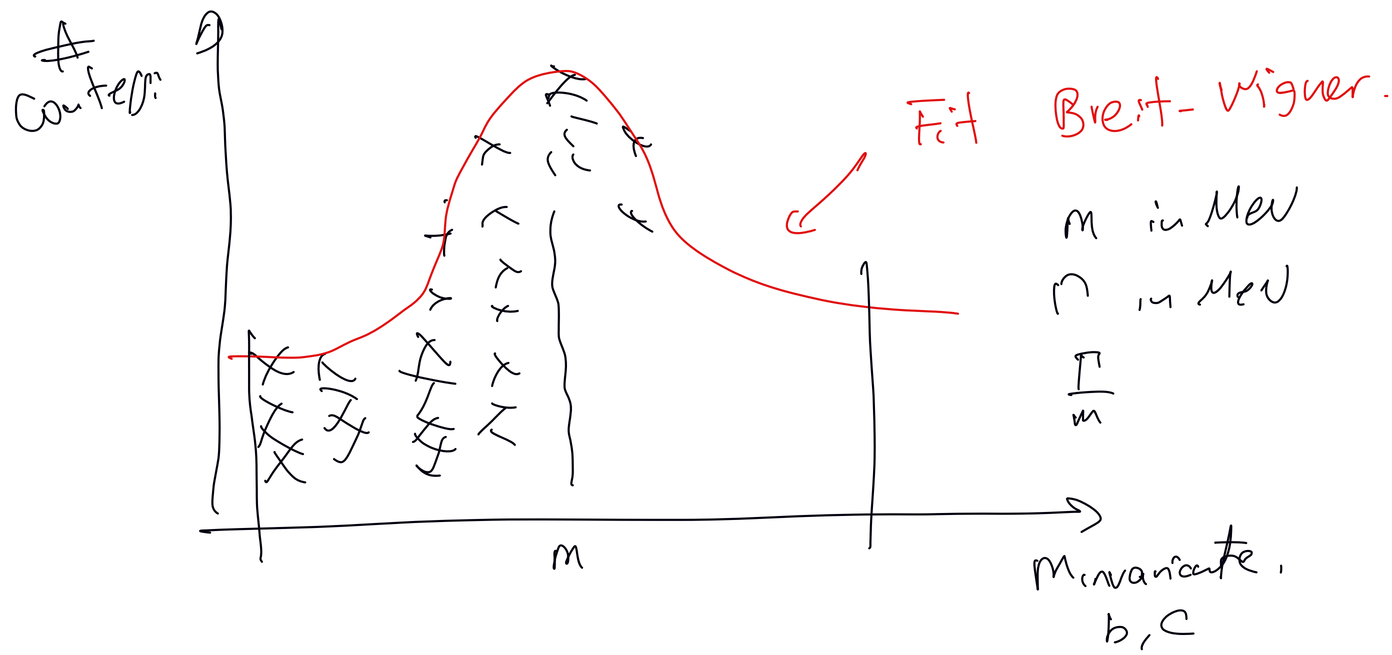
Breit-Wigner

$$|A(E)|^2 = \frac{C'}{4\pi^2} \frac{1}{\left(\frac{\Gamma}{2}\right)^2 + (E-E_0)^2}$$



$$b \longleftarrow \overset{a}{\circ} \longrightarrow c$$

misuro E_b, E_c, $\vec{p}_b$, $\vec{p}_c$ $\Rightarrow$ $m_{inv}^2 = (E_b + E_c)^2 - (\vec{p}_b + \vec{p}_c)^2$



m in MeV

Γ in MeV

$\frac{\Gamma}{m}$

$\Gamma = \frac{1}{\tau} \Rightarrow \Gamma \cdot \tau = 1 = \hbar$

$\lim_{\Gamma \to 0} BW(E) = \delta(E - m)$ particelle stabili