How to write complex equations in LaTeX.

$$\sigma_t^2 = \sigma_{Landau}^2 + \sigma_{jitter}^2 + \sigma_{timewalk}^2 \tag{1}$$

$$\sigma_{jitter} = \frac{N}{dV/dt} = \frac{t_{rise}}{(S/N)} \tag{2}$$

$$\sigma_{timewalk} = \Big[\frac{V_{th}}{S/t_{rise}}\Big]_{RMS} \propto \Big[\frac{N}{dV/dt}\Big]_{RMS} \tag{3}$$

Write functions

$$\sum_i V_{ij}^* V_{ik} = \begin{cases} 0 & if(j \neq k) \\ 1 & if(j = k) \end{cases} \tag{4}$$

Now the decay amplitude is:

$$\begin{aligned} < BC|H|A > =< 0| \int d^3r_a d^3r_{\bar{a}} d^3r_b d^3r_{\bar{b}} d^3r_c d^3r_{\bar{c}} d^3R \\ e^{-iP_B.\left(\frac{m_q r_b + m_{\bar{c}} r_{\bar{b}}}{m_q + m_{\bar{b}}}\right)} \psi^*_{B(r_b - r_{\bar{b}})} e^{-iP_c.\left(\frac{m_c r_c + m_{\bar{q}} r_{\bar{c}}}{m_c + m_{\bar{q}}}\right)} \psi^*_{c(r_c - r_{\bar{c}})} \nabla |0> \end{aligned} \tag{5}$$

$\Leftrightarrow$

$$R_{p_T} = \frac{\sum_{p_T}^{trk}(PV_0)}{p_T^{jet}} \tag{6}$$