

$$M_{\text{CT}}^2 = m^2(v_a) + m^2(v_b) + 2 \left[E_{\text{T}}(v_a) E_{\text{T}}(v_b) + \mathbf{p}_{\text{T}}(v_a) \cdot \mathbf{p}_{\text{T}}(v_b) \right]$$