



Figure 1.5. A typical Feynman diagram in quantum field theory. Four external particles, originating at space-time points  $A$ ,  $B$ ,  $C$  and  $D$ , undergo a tree level scattering process, the interactions occurring at  $p$  and  $q$ .

$$\langle y | \square^{-1} | x \rangle = \int_0^\infty d\tau \int_x^y Dx(t) \exp\left\{-\frac{1}{4} \int_0^\tau dt \dot{x}^2\right\}. \quad (1.4.2)$$