

Feynman rules \rightarrow a procedure for computing Green's fns to arbitrary order in power series expansion in \hbar .

Our goal: Rederive the Feynman rules using a different approach.

\rightarrow Path integrals

Why should we do this?

\rightarrow ① The earlier method was not manifestly Lorentz invariant although the final result is Lorentz invariant.

Reason: - We treat space & Time coordinates differently.

[While taking the \mathcal{H} , we treat 't' diff. bcs we define canonically conjugate mom. (although the 'L' was Lor. inv.)]

② If the interaction term in the Lagrangian 'L' contains derivatives then the defn. of conjugate momentum ~~is~~ involves interaction terms $\xrightarrow[\text{result}]{\text{as a}}$ \mathcal{H} can get complicated.

