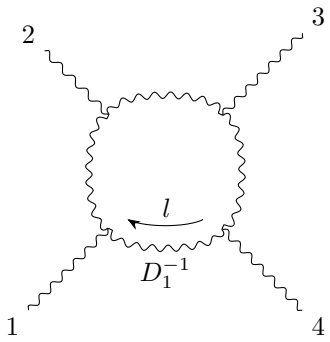
Diagrams and amplitudes

A scattering amplitude is given in a diagrammatic form → Feynman diagrams:



This diagram represents a 1 loop, $(2 \to 2)$ scattering process. We translate this kind of diagram into momentum integral form → a scattering amplitude.

$$\int d^d q \frac{N(l)}{D_1 D_2 D_3 D_4}$$

where $N(q)$ is determined by the theoretical model, e.g., the Standard Model. For simplicity, we consider scalar integrals which has $N(l) = 1$.