

Particle spectrograph

Wave operator and propagator

Quadratic (free) action

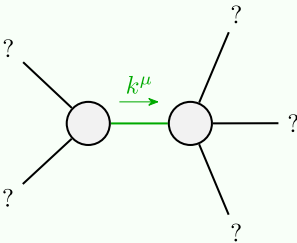
$$S = \iiint (\phi \rho + \alpha \partial_\alpha \phi \partial^\alpha \phi) [t, x, y, z] dz dy dx dt$$

(No source constraints)

$$\phi_{0+}^{\#1} + \boxed{\alpha k^2} \phi_{0+}^{\#1}$$

$$\rho_{0+}^{\#1} + \boxed{\frac{1}{\alpha k^2}} \rho_{0+}^{\#1}$$

Massive and massless spectra



Quadratic pole

Pole residue:	$\frac{1}{\alpha} > 0$
Polarisations:	1

(No massive particles)

Unitarity conditions

$$\alpha > 0$$