

Particle spectrograph

Wave operator and propagator

Quadratic (free) action

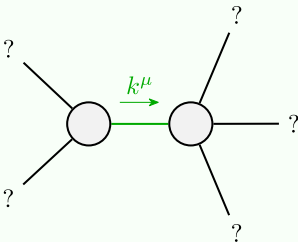
$$S = \int \int \int \int (\mathcal{B}^\alpha \mathcal{T}_\alpha + 2 \alpha (-\partial_\alpha \mathcal{B}_\beta + \partial_\beta \mathcal{B}_\alpha) \partial^\beta \mathcal{B}^\alpha) [t, x, y, z] dz dy dx dt$$

Source constraints/gauge generators

SO(3) irreps	Multiplicities
$\mathcal{T}_0^{#1} = 0$	1
Total constraints:	1

$$\begin{array}{c} \mathcal{T}_{1-}^{#1} + \alpha \left[\frac{1}{2 \alpha k^2} \right] \mathcal{T}_{1-}^{#1} + \alpha \left[2 \alpha k^2 \right] \mathcal{B}_{1-}^{#1} + \alpha \mathcal{B}_{1-}^{#1} \\ \mathcal{T}_{0+}^{#1} + \left[0 \right] \mathcal{B}_{0+}^{#1} + \left[0 \right] \mathcal{B}_{0+}^{#1} \end{array}$$

Massive and massless spectra



Quadratic pole

Pole residue:	$-\frac{1}{\alpha} > 0$
Polarisations:	2

(No massive particles)

Unitarity conditions

$$\alpha < 0$$