

Particle spectrograph

Wave operator and propagator

Quadratic (free) action

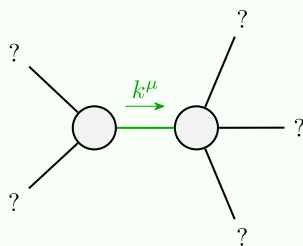
$$S_F = \iiint (\mathcal{B}^{\alpha\beta} \mathcal{J}_{\alpha\beta} + \frac{1}{3} \gamma (-2 \partial_\beta \mathcal{B}_{\alpha\chi} + \partial_\chi \mathcal{B}_{\alpha\beta}) \partial^\chi \mathcal{B}^{\alpha\beta}) [t, x, y, z] dz dy dx dt$$

Source constraints/gauge generators

SO(3) irreps	Multiplicities
$\mathcal{J}_{1^-}^{\#1\alpha} = 0$	3
Total constraints:	3

$\mathcal{J}_{1^-}^{\#1\alpha}$	$\mathcal{J}_{1^+}^{\#1+\alpha\beta}$	$\mathcal{B}_{1^-}^{\#1\alpha}$	$\mathcal{B}_{1^+}^{\#1+\alpha\beta}$
0	$\frac{3}{\gamma k^2}$	0	$\frac{\gamma k^2}{3}$
0	0	0	0
$\mathcal{J}_{1^+}^{\#1\alpha}$	$\mathcal{J}_{1^-}^{\#1\alpha}$	$\mathcal{B}_{1^+}^{\#1\alpha}$	$\mathcal{B}_{1^-}^{\#1\alpha}$

Massive and massless spectra



Quadratic pole

Pole residue: $\frac{1}{\gamma} > 0$

Polarisations: 1

(No massive particles)

Unitarity conditions

$$\gamma > 0$$