

Particle spectrograph

Wave operator and propagator

$$\begin{array}{c} \mathcal{B}_{0+}^{\#1} \\ \mathcal{B}_{0+}^{\#1} + \boxed{\beta k^2} \\ \mathcal{J}_{1-}^{\#1} \alpha \end{array} \quad \begin{array}{c} \mathcal{B}_{1-}^{\#1} \\ \mathcal{B}_{1-}^{\#1} + \alpha \\ \boxed{0} \end{array} \quad \begin{array}{c} \mathcal{B}_{1-}^{\#1} \alpha \\ \mathcal{B}_{1-}^{\#1} + \alpha \\ \boxed{0} \end{array} \quad \begin{array}{c} \mathcal{J}_{0+}^{\#1} \\ \mathcal{J}_{0+}^{\#1} + \boxed{\frac{1}{\beta k^2}} \end{array}$$

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

Quadratic (free) action

$$S_F == \iiint (\mathcal{B}^\alpha \mathcal{J}_\alpha + \beta \partial_\alpha \mathcal{B}^\alpha \partial_\beta \mathcal{B}^\beta)[t, x, y, z] dz dy dx dt$$

Massive and massless spectra

(No massless particles)

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Unitarity conditions

True