

# Particle spectrograph

## Wave operator and propagator

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

$$\mathcal{J}_{1^-}^{\#1\alpha} + \boxed{0} \mathcal{J}_{1^-}^{\#1\alpha}$$

$$\mathcal{B}_{1^-}^{\#1\alpha} + \boxed{0} \mathcal{B}_{1^-}^{\#1\alpha}$$

$$\mathcal{J}_{0^+}^{\#1} + \boxed{\frac{1}{\beta k^2}} \mathcal{J}_{0^+}^{\#1}$$

$$\mathcal{B}_{0^+}^{\#1} + \boxed{\beta k^2} \mathcal{B}_{0^+}^{\#1}$$

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