

# Particle spectrograph

## Wave operator and propagator

$\mathcal{B}_{0+}^{\#1} + \boxed{\beta \kappa^2}$  $\mathcal{J}_{1-}^{\#1} \alpha$

$\mathcal{J}_{1-}^{\#1} + \alpha$  $\boxed{0}$  $\mathcal{B}_{1-}^{\#1} + \alpha$  $\boxed{0}$  $\mathcal{J}_{0+}^{\#1} + \boxed{\frac{1}{\beta \kappa^2}}$  $\mathcal{J}_{0+}^{\#1}$

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

Quadratic (free) action

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

## Massive and massless spectra

(No massless particles)

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## Unitarity conditions

True