Particle spectrograph

Wave operator and propagator

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

Quadratic (free) Lagrangian density
$\mathcal{B}^{\alpha}\ \mathcal{J}_{\alpha} - 2\,\alpha\,\partial_{\alpha}\mathcal{B}_{\beta}\,\partial^{\beta}\mathcal{B}^{\alpha} + 2\,\alpha\,\partial_{\beta}\mathcal{B}_{\alpha}\,\partial^{\beta}\mathcal{B}^{\alpha}$

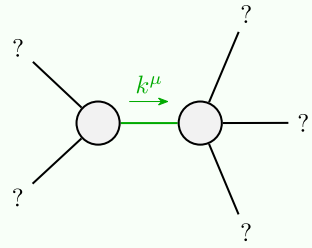
$$\mathcal{J}^{\#1}_{1^-}{}_{\alpha} \quad \mathcal{J}^{\#1}_{1^-} \dagger^{\alpha} \boxed{\frac{1}{2\,\alpha\,k^2}}$$

$$\mathcal{B}^{\#1}_{1^-}{}_{\alpha} \quad \mathcal{B}^{\#1}_{1^-} \dagger^{\alpha} \boxed{2\,\alpha\,k^2}$$

$$\mathcal{B}^{\#1}_{0^+} \quad \mathcal{B}^{\#1}_{0^+} \dagger \boxed{0}$$

$$\mathcal{J}^{\#1}_{0^+} \quad \mathcal{J}^{\#1}_{0^+} \dagger \boxed{0}$$

Massive and massless spectra



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

(No massive particles)

Unitarity conditions

$\alpha < 0$