Particle spectrograph

Wave operator and propagator

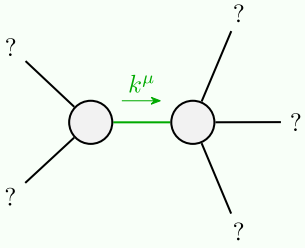
Quadratic (free) action

$$S == \int\int\int\int (\mathcal{B}^{\alpha}\ \mathcal{J}_{\alpha} + 2\,\alpha\,(-\partial_{\alpha}\mathcal{B}_{\beta} + \partial_{\beta}\mathcal{B}_{\alpha})\,\partial^{\beta}\mathcal{B}^{\alpha})[t, x, y, z]\,dz\,dy\,dx\,dt$$

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

$$\mathcal{J}_{1^-}^{\#1}\dagger^{\alpha}\ \overset{\mathcal{J}_{1^-}^{\#1}{}_{\alpha}}{\boxed{\frac{1}{2\,\alpha\,k^2}}}\ \mathcal{B}_{1^-}^{\#1}\dagger^{\alpha}\ \overset{\mathcal{B}_{1^-}^{\#1}{}_{\alpha}}{\boxed{2\,\alpha\,k^2}}\ \mathcal{J}_{0^+}^{\#1}\dagger\ \overset{\mathcal{J}_{0^+}^{\#1}}{\boxed{0}}\ \mathcal{B}_{0^+}^{\#1}\dagger\ \overset{\mathcal{B}_{0^+}^{\#1}}{\boxed{0}}$$

Massive and massless spectra



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

(No massive particles)

Unitarity conditions

$\alpha < 0$