Particle spectrograph

Wave operator and propagator

Quadratic (free) action

$$\mathcal{S} == \int\int\int\int (\mathcal{B}^{\alpha\beta}\ \mathcal{J}_{\alpha\beta} + \frac{1}{3}\,\gamma\,(-2\,\partial_\beta \mathcal{B}_{\alpha\chi} + \partial_\chi \mathcal{B}_{\alpha\beta})\,\partial^\chi \mathcal{B}^{\alpha\beta})[t, x, y, z]\,dz\,dy\,dx\,dt$$

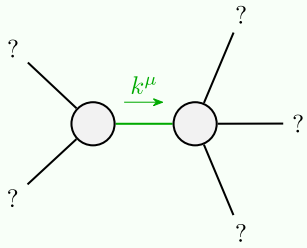
Source constraints/gauge generators

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

	$\mathcal{J}_{1^-}^{\#1\,\alpha}$	$\mathcal{J}_{1^+}^{\#1\,\alpha\beta}$
$\mathcal{J}_{1^+}^{\#1\,\alpha\beta}$	0	$\frac{3}{\gamma k^2}$
$\mathcal{J}_{1^-}^{\#1\,\alpha}$	0	0

	$\mathcal{B}_{1^-}^{\#1\,\alpha}$	$\mathcal{B}_{1^+}^{\#1\,\alpha\beta}$
$\mathcal{B}_{1^+}^{\#1\,\alpha\beta}$	0	$\frac{\gamma k^2}{3}$
$\mathcal{B}_{1^-}^{\#1\,\alpha}$	0	0

Massive and massless spectra



Quadratic pole

Pole residue:	$\frac{1}{\gamma} > 0$
Polarisations:	1

(No massive particles)

Unitarity conditions

$\gamma > 0$