Particle spectrograph

Wave operator and propagator

Quadratic (free) Lagrangian density

$$h^{\alpha\beta}\,\mathcal{T}_{\alpha\beta} + \alpha\,\partial_\beta h^{\chi}{}_{\chi}\,\partial^\beta h^{\alpha}{}_{\alpha} - 2\,\alpha\,\partial_\beta h_{\alpha\chi}\,\partial^\chi h^{\alpha\beta} + \alpha\,\partial_\chi h_{\alpha\beta}\,\partial^\chi h^{\alpha\beta}$$

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

	$h^{\#1}_{0^+}$	$h^{\#2}_{0^+}$
$h^{\#1}_{0^+}\,\dagger$	$4\,\alpha k^2$	$\sqrt{3}\,\alpha k^2$
$h^{\#2}_{0^+}\,\dagger$	$\sqrt{3}\,\alpha k^2$	0

	$\mathcal{T}^{\#1}_{0^+}\,\dagger$	$\mathcal{T}^{\#2}_{0^+}\,\dagger$
$\mathcal{T}^{\#1}_{0^+}$	0	$\frac{1}{\sqrt{3}\,\alpha k^2}$
$\mathcal{T}^{\#2}_{0^+}$	$\frac{1}{\sqrt{3}\,\alpha k^2}$	$-\frac{4}{3\,\alpha k^2}$

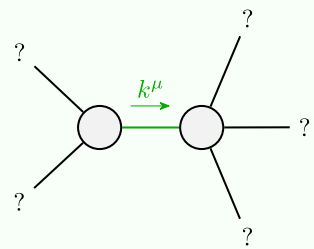
	$h^{\#1}_{2^+}{}^{\alpha\beta}\,\dagger$
$h^{\#1}_{2^+}{}^{\alpha\beta}$	αk^2

	$\mathcal{T}^{\#1}_{2^+}{}^{\alpha\beta}\,\dagger$
$\mathcal{T}^{\#1}_{2^+}{}^{\alpha\beta}$	$\frac{1}{\alpha k^2}$

	$h^{\#1}_{1^-}{}^{\alpha}\,\dagger$
$h^{\#1}_{1^-}{}^{\alpha}$	0

	$\mathcal{T}^{\#1}_{1^-}{}^{\alpha}\,\dagger$
$\mathcal{T}^{\#1}_{1^-}{}^{\alpha}$	0

Massive and massless spectra



Quadratic pole	
Pole residue:	$\frac{1}{\alpha} > 0$
Polarisations:	3

(No massive particles)

Unitarity conditions

$\alpha > 0$