Particle spectrograph

Wave operator and propagator

Source constraints/gauge generators	
SO(3) irreps	Multiplicities
$\mathcal{T}^{\#2}_{0^+} == 0$	1
$\mathcal{T}^{\#1\alpha}_{1^-} == 0$	3
Total constraints:	4

$h^{\#1}_{1^-\alpha}$ | $h^{\#1}_{1^-}{}^{\alpha}$

0	

$h^{\#1}_{2^+\alpha\beta}$ | $h^{\#1}_{2^+}{}^{\alpha\beta}$

$-\frac{\alpha k^2}{2}$	

$\mathcal{T}^{\#1}_{0^+}$ $\mathcal{T}^{\#2}_{0^+}$ | $\mathcal{T}^{\#1}_{0^+}$ $\mathcal{T}^{\#2}_{0^+}$

0	$\frac{1}{\alpha k^2}$
0	0

$\mathcal{T}^{\#1}_{1^-\alpha}$ | $\mathcal{T}^{\#1}_{1^-}{}^{\alpha}$

0	

$\mathcal{T}^{\#1}_{2^+\alpha\beta}$ | $\mathcal{T}^{\#1}_{2^+}{}^{\alpha\beta}$

$-\frac{2}{\alpha k^2}$	

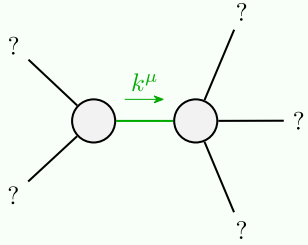
$h^{\#1}_{0^+}$ $h^{\#2}_{0^+}$ | $h^{\#1}_{0^+}$ $h^{\#2}_{0^+}$

0	αk^2
0	0

Quadratic (free) Lagrangian density

$$h^{\alpha\beta}\,\mathcal{T}_{\alpha\beta} + \tfrac{1}{2}\,\alpha\,\partial_\beta h^{\chi}{}_{\chi}\,\partial^\beta h^{\alpha}{}_{\alpha} + \alpha\,\partial_\alpha h^{\alpha\beta}\,\partial_\chi h_\beta{}^{\chi} - \alpha\,\partial^\beta h^{\alpha}{}_{\alpha}\,\partial_\chi h_\beta{}^{\chi} - \tfrac{1}{2}\,\alpha\,\partial_\chi h_{\alpha\beta}\,\partial^\chi h^{\alpha\beta}$$

Massive and massless spectra



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

(No massive particles)

Unitarity conditions

$\alpha < 0$