Particle spectrograph

Wave operator and propagator

Quadratic (free) Lagrangian density

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

$h_{0^+}^{\#1}$ † $h_{0^+}^{\#2}$

$-\sqrt{3}\,\beta$	$-2\,\beta + \alpha k^2$
0	$-\sqrt{3}\,\beta$

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

$-\frac{1}{\sqrt{3}\,\beta}$	0
$\frac{2\beta - \alpha k^2}{3\beta^2}$	$-\frac{1}{\sqrt{3}\,\beta}$

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

$\frac{1}{\beta - \frac{\alpha k^2}{2}}$

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

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

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

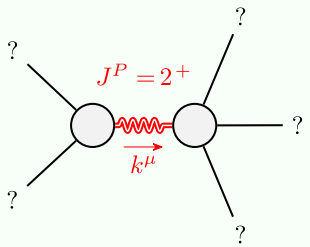
$\frac{1}{\beta}$

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

β

(No source constraints)

Massive and massless spectra



Massive particle

Pole residue:	$-\frac{2}{\alpha} > 0$
Polarisations:	5
Square mass:	$\frac{2\,\beta}{\alpha} > 0$
Spin:	2
Parity:	Even

(No massless particles)

Unitarity conditions

$\alpha < 0$ && $\beta < 0$