

## Lagrangian density

$$2\beta^2\phi^2 + \alpha^2\beta^2 h_{\alpha\mu\nu} h^{\alpha\mu\nu} - 3\alpha^2\beta^2 h^\alpha{}_\mu h^\mu{}_\nu + \frac{1}{2}\phi\partial_\alpha\partial^\alpha\phi + \alpha\beta h^\mu{}_\alpha\partial^\alpha\phi - \frac{3}{2}\alpha^2 h^\alpha{}_\mu\partial_\rho\partial^\mu h^\nu{}_\nu - 3\alpha^2 h^{\alpha\mu\nu}\partial_\rho\partial_\nu h^\rho{}_\mu + 6\alpha^2 h^\alpha{}_\mu\partial_\rho\partial_\nu h^\nu{}_\mu + \alpha^2 h^{\alpha\mu\nu}\partial_\rho\partial^\rho h_{\alpha\mu\nu} - 3\alpha^2 h^\alpha{}_\mu\partial_\rho\partial^\rho h^\mu{}_\nu$$

Added source term:  $\phi\rho + h^{\alpha\beta\chi}\mathcal{F}_{\alpha\beta\chi}$

(No source constraints)

$\mathcal{F}_{0+}^{\#1}$	$\mathcal{F}_{0+}^{\#2}$	$\rho_{0+}^{\#1}$
$\mathcal{F}_{0+}^{\#1} \dagger$	$\mathcal{F}_{0+}^{\#2}$	$\rho_{0+}^{\#1}$
$\frac{16\beta^4 - 39\beta^2 k^2 + 9k^4}{40\alpha^2\beta^6}$	$-\frac{24\beta^4 - 17\beta^2 k^2 + 3k^4}{40\alpha^2\beta^6}$	$\frac{i k(\beta^2 + 3k^2)}{20\alpha\beta^5}$
$-\frac{24\beta^4 - 17\beta^2 k^2 + 3k^4}{40\alpha^2\beta^6}$	$\frac{16\beta^4 - 7\beta^2 k^2 + k^4}{40\alpha^2\beta^6}$	$\frac{i(\beta-k)(\beta+k)}{20\alpha\beta^5}$
$-\frac{i k(\beta^2 + 3k^2)}{20\alpha\beta^5}$	$\frac{i k(-\beta^2 + k^2)}{20\alpha\beta^5}$	$\frac{5\beta^2 + k^2}{10\beta^4}$

$h_{0+}^{\#1}$	$h_{0+}^{\#2}$	$\phi_{0+}^{\#1}$
$h_{0+}^{\#1} \dagger$	$h_{0+}^{\#2}$	$\phi_{0+}^{\#1}$
$\frac{1}{2}\alpha^2(-4\beta^2 + k^2)$	$\frac{3}{2}\alpha^2(-2\beta^2 + k^2)$	$\frac{1}{2}i\alpha\beta k$
$\frac{3}{2}\alpha^2(-2\beta^2 + k^2)$	$\frac{1}{2}\alpha^2(-4\beta^2 + 9k^2)$	$\frac{1}{2}i\alpha\beta k$
$-\frac{1}{2}i\alpha\beta k$	$-\frac{1}{2}i\alpha\beta k$	$2\beta^2 - \frac{k^2}{2}$

$$\mathcal{F}_{3-}^{\#1} \dagger^{\alpha\beta\chi} \boxed{\frac{1}{\alpha^2(\beta^2 - k^2)}}$$

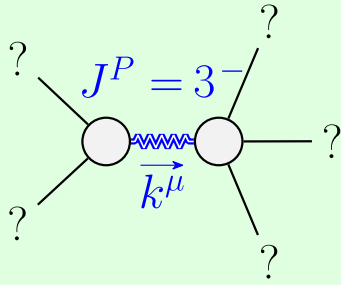
$$\mathcal{F}_{2+}^{\#1} \dagger^{\alpha\beta} \boxed{\frac{1}{\alpha^2\beta^2}}$$

$$h_{2+}^{\#1} \dagger^{\alpha\beta} \boxed{\alpha^2\beta^2}$$

$$h_{3-}^{\#1} \dagger^{\alpha\beta\chi} \boxed{\alpha^2(\beta - k)(\beta + k)}$$

$$h_{1-}^{\#1} \dagger^\alpha \begin{array}{|c|c|} \hline 0 & -\sqrt{5}\alpha^2\beta^2 \\ \hline -\sqrt{5}\alpha^2\beta^2 & 4\alpha^2(-\beta^2 + k^2) \\ \hline \end{array}$$

$$\mathcal{F}_{1-}^{\#1} \dagger^\alpha \begin{array}{|c|c|} \hline \mathcal{F}_{1-}^{\#2} \dagger^\alpha & -\frac{1}{\sqrt{5}\alpha^2\beta^2} \\ \hline \mathcal{F}_{1-}^{\#1} \dagger^\alpha & 0 \\ \hline \end{array}$$



Massive particle

Pole residue:	$\frac{1}{\alpha^2} > 0$
Polarisations:	7
Square mass:	$\beta^2 > 0$
Spin:	3
Parity:	Odd

Unitarity conditions  
 $\alpha < 0 \parallel \alpha > 0 \&\& \beta < 0 \parallel \beta > 0$

(No massless particles)