

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

$$\begin{array}{cc}
 \mathcal{F}_{1-}^{\#1}{}_{\alpha} & \mathcal{F}_{1-}^{\#2}{}_{\alpha} \\
 \hline
 \mathcal{F}_{1-}^{\#1}{}_{\alpha} + \alpha & \frac{4(\beta k)(\beta + k)}{5 \alpha^2 \beta^4} \\
 \mathcal{F}_{1-}^{\#2}{}_{\alpha} + \alpha & -\frac{1}{\sqrt{5} \alpha^2 \beta^2} \\
 \hline
 & 0
 \end{array}$$

$$\begin{array}{c}
 h_{2+}^{\#1}{}_{\alpha\beta} \\
 \boxed{\alpha^2 \beta^2} \\
 h_{2+}^{\#1}{}_{\alpha\beta}
 \end{array}$$

$$\begin{array}{c}
 \mathcal{F}_{2+}^{\#1}{}_{\alpha\beta} \\
 \boxed{\frac{1}{\alpha^2 \beta^2}} \\
 \mathcal{F}_{2+}^{\#1}{}_{\alpha\beta}
 \end{array}$$

$$\begin{array}{ccc}
 h_{0+}^{\#1}{}_{\alpha} & h_{0+}^{\#2}{}_{\alpha} & \phi_{0+}^{\#1}{}_{\alpha} \\
 \hline
 h_{0+}^{\#1}{}_{\alpha} + \alpha & \frac{1}{2} \alpha^2 (-4 \beta^2 + k^2) & \frac{3}{2} \alpha^2 (-2 \beta^2 + k^2) \\
 h_{0+}^{\#2}{}_{\alpha} + \alpha & \frac{3}{2} \alpha^2 (-2 \beta^2 + k^2) & \frac{1}{2} \alpha^2 (-4 \beta^2 + 9 k^2) \\
 \phi_{0+}^{\#1}{}_{\alpha} + \alpha & -\frac{1}{2} i \alpha \beta k & -\frac{1}{2} i \alpha \beta k \\
 \hline
 & 2 \beta^2 - \frac{k^2}{2}
 \end{array}$$

$$\begin{array}{c}
 \mathcal{F}_{3-}^{\#1}{}_{\alpha\beta\chi} \\
 \mathcal{F}_{3-}^{\#1}{}_{\alpha\beta\chi} + \alpha\beta\chi \quad \boxed{\frac{1}{\alpha^2 (\beta^2 - k^2)}}
 \end{array}$$

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

$$\begin{array}{c}
 h_{3-}^{\#1}{}_{\alpha\beta\chi} \\
 h_{3-}^{\#1}{}_{\alpha\beta\chi} + \alpha\beta\chi \quad \boxed{\alpha^2 (\beta - k) (\beta + k)}
 \end{array}$$

Unitarity conditions

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

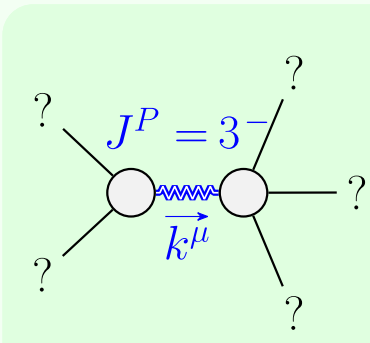
(No massless particles)

Lagrangian density

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

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

(No source constraints)



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