

## Lagrangian density

$$\frac{1}{2} \alpha \partial_\beta h^\chi_\chi \partial^\beta h^\alpha_\alpha + \alpha \partial_\alpha h^{\alpha\beta} \partial_\chi h^\chi_\beta - \alpha \partial^\beta h^\alpha_\alpha \partial_\chi h^\chi_\beta - \frac{1}{2} \alpha \partial_\chi h_{\alpha\beta} \partial^\chi h^{\alpha\beta}$$

Added source term:  $h^{\alpha\beta} \mathcal{T}_{\alpha\beta}$

## Source constraints

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

$$\begin{array}{c} \mathcal{T}_{0^+}^{\#1} + \\ \mathcal{T}_{0^+}^{\#2} + \end{array} \begin{array}{|c|c|} \hline \frac{1}{\alpha k^2} & 0 \\ \hline 0 & 0 \\ \hline \end{array}$$

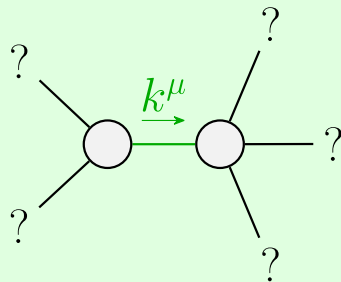
$$\begin{array}{c} h_{0^+}^{\#2} + \\ h_{0^+}^{\#1} + \end{array} \begin{array}{|c|c|} \hline 0 & \alpha k^2 \\ \hline 0 & 0 \\ \hline \end{array} \begin{array}{c} h_{0^+}^{\#1} \\ h_{0^+}^{\#2} \end{array}$$

$$\begin{array}{c} \mathcal{T}_{2^+}^{\#1} + \alpha\beta \\ \mathcal{T}_{2^+}^{\#1} + \alpha\beta \end{array} \begin{array}{|c|} \hline -\frac{2}{\alpha k^2} \\ \hline \end{array} \begin{array}{c} \mathcal{T}_{2^+}^{\#1} \\ \mathcal{T}_{2^+}^{\#1} + \alpha\beta \end{array}$$

$$\begin{array}{c} h_{2^+}^{\#1} + \alpha\beta \\ h_{2^+}^{\#1} + \alpha\beta \end{array} \begin{array}{|c|} \hline -\frac{\alpha k^2}{2} \\ \hline \end{array} \begin{array}{c} h_{2^+}^{\#1} \\ h_{2^+}^{\#1} + \alpha\beta \end{array}$$

$$\begin{array}{c} \mathcal{T}_{1^-}^{\#1\alpha} \\ \mathcal{T}_{1^-}^{\#1} + \alpha \end{array} \begin{array}{|c|} \hline 0 \\ \hline \end{array}$$

$$\begin{array}{c} h_{1^-}^{\#1\alpha} \\ h_{1^-}^{\#1} + \alpha \end{array} \begin{array}{|c|} \hline 0 \\ \hline \end{array}$$



Quadratic pole

Pole residue:  $-\frac{1}{\alpha} > 0$

Polarisations: 2

## Unitarity conditions

$$\alpha < 0$$

(No massive particles)