## Lagrangian density

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

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

| | $\mathcal{T}_{0^+}^{\#1}$ † | $\mathcal{T}_{0^+}^{\#2}$ † | $\rho_{0^+}^{\#1}$ † |
|---|---|---|---|
| $\mathcal{T}_{0^+}^{\#1}$ | $\frac{1}{\alpha k^2}$ | 0 | 0 |
| $\mathcal{T}_{0^+}^{\#2}$ | 0 | 0 | 0 |
| $\rho_{0^+}^{\#1}$ | 0 | 0 | $\frac{1}{\beta k^2}$ |

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

| | $h_{0^+}^{\#1}$ | $h_{0^+}^{\#2}$ | $\phi_{0^+}^{\#1}$ |
|---|---|---|---|
| $h_{0^+}^{\#1}$ † | $\alpha k^2$ | 0 | 0 |
| $h_{0^+}^{\#2}$ † | 0 | 0 | 0 |
| $\phi_{0^+}^{\#1}$ † | 0 | 0 | $\beta k^2$ |

| | $\mathcal{T}_{2^+}^{\#1}{}_{\alpha\beta}$ |
|---|---|
| $\mathcal{T}_{2^+}^{\#1}$ †$^{\alpha\beta}$ | $-\dfrac{2}{\alpha k^2}$ |

| | $h_{2^+}^{\#1}{}_{\alpha\beta}$ |
|---|---|
| $h_{2^+}^{\#1}$ †$^{\alpha\beta}$ | $-\dfrac{\alpha k^2}{2}$ |

| | $\mathcal{T}_{1^-}^{\#1}{}_\alpha$ |
|---|---|
| $\mathcal{T}_{1^-}^{\#1}$ †$^\alpha$ | 0 |

| | $h_{1^-}^{\#1}{}_\alpha$ |
|---|---|
| $h_{1^-}^{\#1}$ †$^\alpha$ | 0 |



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



| Quadratic pole | |
|---|---|
| Pole residue: | $\dfrac{1}{\beta} > 0$ |
| Polarisations: | 1 |
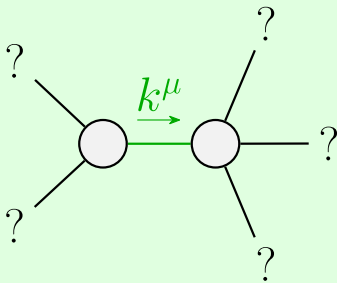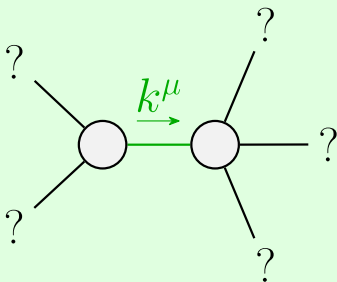
## Unitarity conditions

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

(No massive particles)