

Quadratic pole	
Pole residue:	$-\frac{1}{a_0} > 0$
Polarisations:	2

Unitarity conditions

$a_0 < 0$

(No massive particles)

$\Delta_{1^+}^{\#1} \uparrow \alpha \beta$	$\Delta_{1^+}^{\#2} \uparrow \alpha \beta$	$\Delta_{1^+}^{\#3} \uparrow \alpha \beta$	$\Delta_{1^+}^{\#1} \uparrow \alpha$	$\Delta_{1^+}^{\#2} \uparrow \alpha$	$\Delta_{1^+}^{\#3} \uparrow \alpha$	$\Delta_{1^+}^{\#4} \uparrow \alpha$	$\Delta_{1^+}^{\#5} \uparrow \alpha$	$\Delta_{1^+}^{\#6} \uparrow \alpha$	$\mathcal{T}_{1^+}^{\#1} \uparrow \alpha$
$\Delta_{1^+}^{\#1} \uparrow \alpha \beta$	0	$-\frac{2\sqrt{2}}{a_0}$	0	0	0	0	0	0	0
$\Delta_{1^+}^{\#2} \uparrow \alpha \beta$	$-\frac{2\sqrt{2}}{a_0}$	$\frac{2}{a_0}$	0	0	0	0	0	0	0
$\Delta_{1^+}^{\#3} \uparrow \alpha \beta$	0	$\frac{4}{a_0}$	0	0	0	0	0	0	0
$\Delta_{1^+}^{\#1} \uparrow \alpha$	0	0	0	$\frac{2\sqrt{2}}{a_0}$	0	0	0	0	0
$\Delta_{1^+}^{\#2} \uparrow \alpha$	0	0	$\frac{2\sqrt{2}}{a_0}$	$\frac{2}{a_0}$	0	0	0	0	0
$\Delta_{1^+}^{\#3} \uparrow \alpha$	0	0	0	0	$-\frac{19}{12a_0}$	$-\frac{5\sqrt{5}}{12a_0}$	$-\frac{1}{6\sqrt{2}a_0}$	$-\frac{1}{6a_0}$	0
$\Delta_{1^+}^{\#4} \uparrow \alpha$	0	0	0	0	$\frac{5\sqrt{5}}{12a_0}$	$\frac{1}{12a_0}$	$-\frac{\sqrt{5}}{6a_0}$	$-\frac{\sqrt{5}}{6a_0}$	0
$\Delta_{1^+}^{\#5} \uparrow \alpha$	0	0	0	0	$-\frac{1}{6\sqrt{2}a_0}$	$-\frac{\sqrt{5}}{2a_0}$	$\frac{17}{6a_0}$	$-\frac{7}{3\sqrt{2}a_0}$	0
$\Delta_{1^+}^{\#6} \uparrow \alpha$	0	0	0	0	$-\frac{1}{6a_0}$	$-\frac{\sqrt{5}}{6a_0}$	$-\frac{7}{3\sqrt{2}a_0}$	$\frac{5}{3a_0}$	0
$\mathcal{T}_{1^+}^{\#1} \uparrow \alpha$	0	0	0	0	0	0	0	0	0

$\Gamma_{1^+}^{\#1} \uparrow \alpha \beta$	$\Gamma_{1^+}^{\#2} \uparrow \alpha \beta$	$\Gamma_{1^+}^{\#3} \uparrow \alpha \beta$	$\Gamma_{1^+}^{\#1} \uparrow \alpha$	$\Gamma_{1^+}^{\#2} \uparrow \alpha$	$\Gamma_{1^+}^{\#3} \uparrow \alpha$	$\Gamma_{1^+}^{\#4} \uparrow \alpha$	$\Gamma_{1^+}^{\#5} \uparrow \alpha$	$\Gamma_{1^+}^{\#6} \uparrow \alpha$	$\mathcal{H}_{1^+}^{\#1} \uparrow \alpha$
$\Gamma_{1^+}^{\#1} \uparrow \alpha \beta$	$-\frac{a_0}{4}$	$-\frac{a_0}{2\sqrt{2}}$	0	0	0	0	0	0	0
$\Gamma_{1^+}^{\#2} \uparrow \alpha \beta$	$-\frac{a_0}{2\sqrt{2}}$	0	0	0	0	0	0	0	0
$\Gamma_{1^+}^{\#3} \uparrow \alpha \beta$	0	$\frac{a_0}{4}$	0	0	0	0	0	0	0
$\Gamma_{1^+}^{\#1} \uparrow \alpha$	0	0	$-\frac{a_0}{4}$	$\frac{a_0}{2\sqrt{2}}$	0	0	0	0	0
$\Gamma_{1^+}^{\#2} \uparrow \alpha$	0	0	$\frac{a_0}{2\sqrt{2}}$	0	0	0	0	0	0
$\Gamma_{1^+}^{\#3} \uparrow \alpha$	0	0	0	0	$-\frac{a_0}{3}$	$\frac{\sqrt{5}a_0}{6}$	$-\frac{a_0}{6\sqrt{2}}$	$-\frac{a_0}{6}$	0
$\Gamma_{1^+}^{\#4} \uparrow \alpha$	0	0	0	0	$\frac{\sqrt{5}a_0}{6}$	$\frac{a_0}{3}$	$-\frac{1}{6}\sqrt{\frac{5}{2}}a_0$	$-\frac{\sqrt{5}a_0}{6}$	0
$\Gamma_{1^+}^{\#5} \uparrow \alpha$	0	0	0	0	$-\frac{a_0}{6\sqrt{2}}$	$-\frac{1}{6}\sqrt{\frac{5}{2}}a_0$	$\frac{a_0}{3}$	$\frac{a_0}{6\sqrt{2}}$	0
$\Gamma_{1^+}^{\#6} \uparrow \alpha$	0	0	0	0	$-\frac{a_0}{6}$	$-\frac{\sqrt{5}a_0}{6}$	$\frac{a_0}{6\sqrt{2}}$	$\frac{5a_0}{12}$	0
$\mathcal{H}_{1^+}^{\#1} \uparrow \alpha$	0	0	0	0	0	0	0	0	0

Lagrangian density

$$-\frac{1}{2}a_0\Gamma^{\alpha\beta\chi}_\beta\Gamma^\alpha_\alpha\beta\Gamma^\chi_\beta\Gamma^\alpha_\beta\mathcal{T}_\alpha\beta+\mathcal{T}_\alpha\beta+\Gamma^{\alpha\beta\chi}_\alpha\Delta_{\alpha\beta\chi}^-$$

$$\frac{1}{2}a_0\Gamma^{\alpha\beta\chi}_\beta\partial_\beta h_{\alpha\chi}-\frac{1}{4}a_0\Gamma^\alpha_\alpha\beta\partial_\beta h^\chi_\chi+\frac{1}{4}a_0\Gamma^{\alpha\beta}_\alpha\partial_\beta h^\chi_\chi-\frac{1}{4}a_0h^\chi_\chi\partial_\beta\Gamma^\alpha_\alpha\beta+\frac{1}{4}a_0h^\chi_\chi\partial_\beta\Gamma^\alpha_\alpha\beta-\frac{1}{2}a_0h_{\alpha\chi}\partial_\beta\Gamma^{\alpha\beta\chi}+\frac{1}{2}a_0h_{\alpha\chi}\partial_\beta\Gamma^{\alpha\beta\chi}-\frac{1}{8}a_0\partial_\beta h^\chi_\chi\partial^\beta h^\chi_\chi+\frac{1}{2}a_0\partial_\alpha h^{\alpha\beta}\partial_\chi h_\beta^\chi+\frac{1}{2}a_0\partial^\beta h^\chi_\alpha\partial_\chi h_\beta^\chi-a_0h^{\alpha\beta}\partial_\chi\partial_\beta h^\chi_\alpha+\frac{1}{4}a_0h^\alpha_\alpha\partial_\chi\partial_\beta h^{\beta\chi}+\frac{1}{2}a_0h^\alpha_\alpha\partial_\chi h_{\alpha\beta}\partial^\chi h^\beta_\beta-\frac{1}{4}a_0\partial_\beta h_{\alpha\chi}\partial^\chi h^{\alpha\beta}+\frac{3}{8}a_0\partial_\chi h_{\alpha\beta}\partial^\chi h^{\alpha\beta}+\frac{1}{2}a_0h_{\beta\chi}\partial^\chi\Gamma^\alpha_\alpha\beta$$

$\Delta_{0^+}^{\#1} \uparrow$	$\Delta_{0^+}^{\#2} \uparrow$	$\Delta_{0^+}^{\#3} \uparrow$	$\Delta_{0^+}^{\#4} \uparrow$	$\mathcal{T}_{0^+}^{\#1} \uparrow$	$\mathcal{T}_{0^+}^{\#2} \uparrow$	$\Delta_{0^+}^{\#1} \uparrow$
$\Delta_{0^+}^{\#1} \uparrow$	$-\frac{2}{a_0}$	0	0	0	0	0
$\Delta_{0^+}^{\#2} \uparrow$	0	$-\frac{3}{4a_0}$	$-\frac{1}{2\sqrt{2}a_0}$	0	0	0
$\Delta_{0^+}^{\#3} \uparrow$	0	$\frac{5}{4a_0}$	$-\frac{1}{2\sqrt{2}a_0}$	0	0	0
$\Delta_{0^+}^{\#4} \uparrow$	0	$-\frac{1}{2\sqrt{2}a_0}$	$\frac{1}{2a_0}$	0	0	0
$\mathcal{T}_{0^+}^{\#1} \uparrow$	0	0	0	$\frac{4}{a_0k^2}$	0	0
$\mathcal{T}_{0^+}^{\#2} \uparrow$	0	0	0	0	0	0
$\Delta_{0^+}^{\#1} \uparrow$	0	0	0	0	0	$-\frac{2}{a_0}$

$\Delta_{3^-}^{\#1} \uparrow \alpha \beta \chi$

$-\frac{2}{a_0}$

$\Gamma_{3^-}^{\#1} \uparrow \alpha \beta \chi$

$-\frac{a_0}{2}$

$\Delta_{2^+}^{\#1} \uparrow \alpha \beta$	$\Delta_{2^+}^{\#2} \uparrow \alpha \beta$	$\Delta_{2^+}^{\#3} \uparrow \alpha \beta$	$\mathcal{T}_{2^+}^{\#1} \uparrow \alpha \beta$	$\Delta_{2^+}^{\#1} \uparrow \alpha \beta \chi$	$\Delta_{2^+}^{\#2} \uparrow \alpha \beta \chi$
$\Delta_{2^+}^{\#1} \uparrow \alpha \beta$	$\frac{4}{a_0}$	0	0	0	0
$\Delta_{2^+}^{\#2} \uparrow \alpha \beta$	0	$-\frac{2}{a_0}$	0	0	0
$\Delta_{2^+}^{\#3} \uparrow \alpha \beta$	0	$\frac{4}{a_0}$	0	0	0
$\mathcal{T}_{2^+}^{\#1} \uparrow \alpha \beta$	0	0	$-\frac{8}{a_0k^2}$	0	0
$\Delta_{2^+}^{\#1} \uparrow \alpha \beta \chi$	0	0	0	$\frac{4}{a_0}$	0
$\Delta_{2^+}^{\#2} \uparrow \alpha \beta \chi$	0	0	0	0	$\frac{4}{a_0}$

Source constraints	
SO(3) irreps	#
$\mathcal{T}_{0^+}^{\#2} == 0$	1
$\Delta_{0^+}^{\#3} + 2\Delta_{0^+}^{\#4} + 3\Delta_{0^+}^{\#2} == 0$	1
$\mathcal{T}_{1^+}^{\#1\alpha} == 0$	3
$2\Delta_{1^+}^{\#6\alpha} + \Delta_{1^+}^{\#4\alpha} + 2\Delta_{1^+}^{\#5\alpha} + \Delta_{1^+}^{\#3\alpha} == 0$	3
Total #:	8

$\Gamma_{2^+}^{\#1} \uparrow \alpha \beta$	$\Gamma_{2^+}^{\#2} \uparrow \alpha \beta$	$\Gamma_{2^+}^{\#3} \uparrow \alpha \beta$	$\mathcal{H}_{2^+}^{\#1} \uparrow \alpha \beta$	$\Gamma_{2^+}^{\#1} \uparrow \alpha \beta \chi$	$\Gamma_{2^+}^{\#2} \uparrow \alpha \beta \chi$
$\Gamma_{2^+}^{\#1} \uparrow \alpha \beta$	$\frac{a_0}{4}$	0	0	0	0
$\Gamma_{2^+}^{\#2} \uparrow \alpha \beta$	0	$-\frac{a_0}{2}$	0	0	0
$\Gamma_{2^+}^{\#3} \uparrow \alpha \beta$	0	$\frac{a_0}{4}$	0	0	0
$\mathcal{H}_{2^+}^{\#1} \uparrow \alpha \beta$	0	0	$-\frac{a_0k^2}{8}$	0	0
$\Gamma_{2^+}^{\#1} \uparrow \alpha \beta \chi$	0	0	0	$\frac{a_0}{4}$	0
$\Gamma_{2^+}^{\#2} \uparrow \alpha \beta \chi$	0	0	0	0	$\frac{a_0}{4}$

$\Gamma_{0^+}^{\#1} \uparrow$	$\Gamma_{0^+}^{\#2} \uparrow$	$\Gamma_{0^+}^{\#3} \uparrow$	$\Gamma_{0^+}^{\#4} \uparrow$	$\mathcal{H}_{0^+}^{\#1} \uparrow$	$\mathcal{H}_{0^+}^{\#2} \uparrow$	$\Gamma_{0^+}^{\#1} \uparrow$
$\Gamma_{0^+}^{\#1} \uparrow$	$-\frac{a_0}{2}$	0	0	0	0	0
$\Gamma_{0^+}^{\#2} \uparrow$	0	0	$\frac{a_0}{2}$	$-\frac{a_0}{2\sqrt{2}}$	0	0
$\Gamma_{0^+}^{\#3} \uparrow$	0	$\frac{a_0}{2}$	0	$-\frac{a_0}{2\sqrt{2}}$	0	0
$\Gamma_{0^+}^{\#4} \uparrow$	0	$-\frac{a_0}{2\sqrt{2}}$	$-\frac{a_0}{2\sqrt{2}}$	$\frac{a_0}{2}$	0	0
$\mathcal{H}_{0^+}^{\#1} \uparrow$	0	0	0	$\frac{a_0k^2}{4}$	0	0
$\mathcal{H}_{0^+}^{\#2} \uparrow$	0	0	0	0	0	0
$\Gamma_{0^+}^{\#1} \uparrow$	0	0	0	0	0	$-\frac{a_0}{2}$