$\Delta_{1}^{\#1}{}_{lpha}$	$_eta$ $\Delta_{1^+lphaeta}^{\#2}$	$\Delta^{\#3}_{1^+lphaeta}$	$\Delta_1^{\#1}{}_{lpha}$	$\Delta_{1^{-}}^{\#2}{}_{lpha}$	$\Delta_{1^{-}}^{\#3}{}_{lpha}$	$\Delta_{1^{-}}^{\#4}$	$\Delta_{1^{-}}^{\#5}{}_{lpha}$	$\Delta_{1^{-}}^{\#6}$	${\mathcal T}_{1^-}^{\sharp 1}{}_{lpha}$
$\Delta_{1}^{\sharp 1} \dagger^{\alpha \beta}$ 0	$-\frac{2\sqrt{2}}{a_0}$	0	0	0	0	0	0	0	0
$\Delta_{1+}^{\#2} + \alpha \beta = \frac{2\sqrt{2}}{a_0}$	$\frac{2(a_0^2 - 14a_0c_1k^2 - 35c_1a_0^2(a_0 - 29c_1k^2))}{a_0^2(a_0 - 29c_1k^2)}$		0	0	0	0	0	0	0
$\Delta_{1}^{\#3} \dagger^{\alpha\beta}$ 0	$\frac{40 \sqrt{2} c_1 k^2}{a_0^2 \cdot 29 a_0 c_1 k^2}$	$\frac{4}{a_0 \cdot 29 c_1 k^2}$	0	0	0	0	0	0	0
$\Delta_1^{\#1} \uparrow^{\alpha}$ 0	0	0	0	$\frac{\sqrt{2} (4+k^2)}{a_0 (2+k^2)}$	$-\frac{2k^2}{\sqrt{3} a_0 (2+k^2)}$	0	$\frac{\sqrt{\frac{2}{3}} k^2}{a_0 (2+k^2)}$	0	$-\frac{2i\sqrt{2}k}{a_0(2+k^2)}$
$\Delta_1^{\#2} \uparrow^{\alpha}$ 0	0	0	$\frac{\sqrt{2} (4+k^2)}{a_0 (2+k^2)}$	$\frac{a_0^2 (4+k^2)^2 - 30 a_0 c_1 k^2 (4+k^2) (4+3 k^2) + c_1^2 k^4 (6416 + 7928 k^2 + 1901 k^4)}{2 a_0^2 (2+k^2)^2 (a_0 - 33 c_1 k^2)}$	$\frac{k^2 \left(a_0^2 \left(-2+k^2\right)+a_0 c_1 \left(560+302 k^2+71 k^4\right)-2 c_1^2 k^2 \left(9440+1901 k^2 \left(4+k^2\right)\right)\right)}{2 \sqrt{6} \ a_0^2 \left(2+k^2\right)^2 \left(a_0-33 c_1 k^2\right)}$	$-\frac{\sqrt{\frac{5}{6}} k^2 (a_0+c_1 (40-31 k^2))}{2 a_0 (2+k^2) (a_0-33 c_1 k^2)}$	$\frac{k^2 (2 a_0^2 (5 + 2 k^2) - a_0 c_1 (880 + 778 k^2 + 199 k^4) + c_1^2 k^2 (9440 + 1901 k^2 (4 + k^2)))}{2 \sqrt{3} a_0^2 (2 + k^2)^2 (a_0 - 33 c_1 k^2)}$	$\frac{k^2 \left(-a_0 + c_1 \left(200 + 43 k^2\right)\right)}{\sqrt{6} a_0 \left(2 + k^2\right) \left(a_0 - 33 c_1 k^2\right)}$	$-\frac{i k (-30 a_0 c_1 k^4 + a_0^2 (4 + k^2) + 27 c_1^2 k^4 (-28 + 3 k^2))}{a_0^2 (2 + k^2)^2 (a_0 - 33 c_1 k^2)}$
$\Delta_1^{\#3} \uparrow^{\alpha}$ 0	0	0	$-\frac{2k^2}{\sqrt{3}(2a_0+a_0k^2)}$	$\frac{k^2 (a_0^2 (-2+k^2) + a_0 c_1 (560 + 302 k^2 + 71 k^4) - 2 c_1^2 k^2 (9440 + 1901 k^2 (4+k^2)))}{2 \sqrt{6} a_0^2 (2+k^2)^2 (a_0 - 33 c_1 k^2)}$	$\frac{a_0^2 (76+52 k^2+3 k^4)+4 a_0 c_1 k^2 (472+214 k^2+19 k^4)+4 c_1^2 k^4 (5120+7280 k^2+1901 k^4)}{12 a_0^2 (2+k^2)^2 (a_0-33 c_1 k^2)}$	$\frac{\sqrt{5} (10 a_0 + (3 a_0 - 328 c_1) k^2 - 62 c_1 k^4)}{12 a_0 (2 + k^2) (a_0 - 33 c_1 k^2)}$	$\frac{2 a_0^2 (-2+k^2) + a_0 c_1 k^2 (472 + 934 k^2 + 289 k^4) - 2 c_1^2 k^4 (5120 + 7280 k^2 + 1901 k^4)}{6 \sqrt{2} a_0^2 (2+k^2)^2 (a_0 - 33 c_1 k^2)}$	$-\frac{2a_0 + (3a_0 - 56c_1)k^2 + 86c_1k^4}{6a_0(2+k^2)(a_0 - 33c_1k^2)}$	$\frac{i k (54 c_1^2 k^4 (40 + 3 k^2) + a_0^2 (6 + 5 k^2) - 3 a_0 c_1 k^2 (86 + 23 k^2))}{\sqrt{6} a_0^2 (2 + k^2)^2 (a_0 - 33 c_1 k^2)}$
$\Delta_1^{\#4} \uparrow^{\alpha}$ 0	0	0	0	$-\frac{\sqrt{\frac{5}{6}} k^2 (a_0+c_1 (40-31 k^2))}{2 a_0 (2+k^2) (a_0-33 c_1 k^2)}$	$\frac{\sqrt{5} (10 a_0 + k^2 (3 a_0 - 2 c_1 (164 + 31 k^2)))}{12 a_0 (2 + k^2) (a_0 - 33 c_1 k^2)}$	$\frac{1}{12 a_0 - 396 c_1 k^2}$	$\frac{\sqrt{\frac{5}{2}} \left(-2 a_0 + c_1 k^2 \left(164 + 31 k^2\right)\right)}{6 a_0 \left(2 + k^2\right) \left(a_0 - 33 c_1 k^2\right)}$	$-\frac{\sqrt{5}}{6(a_0-33c_1k^2)}$	$-\frac{i\sqrt{\frac{5}{6}}k(a_0-51c_1k^2)}{a_0(2+k^2)(a_0-33c_1k^2)}$
$\Delta_{1}^{\#5} \uparrow^{\alpha}$ 0	0	0	$\frac{\sqrt{\frac{2}{3}} k^2}{2 a_0 + a_0 k^2}$	$\frac{k^2 \left(2 a_0^{ 2} \left(5+2 k^2\right)-a_0 c_1 \left(880+778 k^2+199 k^4\right)+c_1^{ 2} k^2 \left(9440+1901 k^2 \left(4+k^2\right)\right)\right)}{2 \sqrt{3} a_0^{ 2} \left(2+k^2\right)^2 \left(a_0\text{-}33 c_1 k^2\right)}$	$\frac{2a_0^2(-2+k^2) + a_0c_1k^2(472 + 934k^2 + 289k^4) - 2c_1^2k^4(5120 + 7280k^2 + 1901k^4)}{6\sqrt{2}a_0^2(2+k^2)^2(a_0 - 33c_1k^2)}$	$\frac{\sqrt{\frac{5}{2}} \left(-2 a_0 + c_1 k^2 \left(164 + 31 k^2\right)\right)}{6 a_0 \left(2 + k^2\right) \left(a_0 - 33 c_1 k^2\right)}$	$\frac{4 a_0^2 (17 + 14 k^2 + 3 k^4) - 4 a_0 c_1 k^2 (236 + 287 k^2 + 77 k^4) + c_1^2 k^4 (5120 + 7280 k^2 + 1901 k^4)}{6 a_0^2 (2 + k^2)^2 (a_0 - 33 c_1 k^2)}$	$-\frac{c_1 k^2 (28-43 k^2)+2 a_0 (7+3 k^2)}{3 \sqrt{2} a_0 (2+k^2) (a_0-33 c_1 k^2)}$	$\frac{i k (2 a_0^2 (3+k^2)-27 c_1^2 k^4 (40+3 k^2)+3 a_0 c_1 k^2 (34+7 k^2))}{\sqrt{3} a_0^2 (2+k^2)^2 (a_0-33 c_1 k^2)}$
$\Delta_1^{\#6} \uparrow^{\alpha}$ 0	0	0	0	$\frac{k^2 \left(-a_0 + c_1 \left(200 + 43 k^2\right)\right)}{\sqrt{6} a_0 \left(2 + k^2\right) \left(a_0 - 33 c_1 k^2\right)}$	$-\frac{2 a_0 + (3 a_0 - 56 c_1) k^2 + 86 c_1 k^4}{6 a_0 (2 + k^2) (a_0 - 33 c_1 k^2)}$	$-\frac{\sqrt{5}}{6(a_0-33c_1k^2)}$	$-\frac{c_1 k^2 (28-43 k^2)+2 a_0 (7+3 k^2)}{3 \sqrt{2} a_0 (2+k^2) (a_0-33 c_1 k^2)}$	$\frac{5}{3(a_0-33c_1k^2)}$	$-\frac{i\sqrt{\frac{2}{3}}k(a_0+57c_1k^2)}{a_0(2+k^2)(a_0-33c_1k^2)}$
$\mathcal{T}_{1}^{#1} \dagger^{\alpha} = 0$	0	0	$\frac{2i\sqrt{2}k}{2a_0+a_0k^2}$	$\frac{i(-30a_0c_1k^5 + a_0^2k(4+k^2) + 27c_1^2k^5(-28+3k^2))}{a_0^2(2+k^2)^2(a_0-33c_1k^2)}$	$-\frac{i(54c_1^2k^5(40+3k^2)+a_0^2k(6+5k^2)-3a_0c_1k^3(86+23k^2))}{\sqrt{6}a_0^2(2+k^2)^2(a_0-33c_1k^2)}$	$\frac{i\sqrt{\frac{5}{6}} k(a_0-51c_1 k^2)}{a_0(2+k^2)(a_0-33c_1 k^2)}$	$-\frac{i(2a_0^2k(3+k^2)-27c_1^2k^5(40+3k^2)+3a_0c_1k^3(34+7k^2))}{\sqrt{3}a_0^2(2+k^2)^2(a_0-33c_1k^2)}$	$\frac{i\sqrt{\frac{2}{3}}k(a_0+57c_1k^2)}{a_0(2+k^2)(a_0-33c_1k^2)}$	$\frac{2k^{2}(a_{0}^{2}+30a_{0}c_{1}k^{2}-459c_{1}^{2}k^{4})}{a_{0}^{2}(2+k^{2})^{2}(a_{0}-33c_{1}k^{2})}$

 $\Delta_{0^{+4}}^{#4}$ †

 $\frac{32(13a_0 + (3a_0 - 197c_1)k^2)}{3a_0^2(16 + 3k^2)^2}$

 $\frac{4i\sqrt{2}k(10a_0+(3a_0-394c_1)k^2)}{a_0^2(16+3k^2)^2}$

0

 $\frac{4\sqrt{3}(a_0.65c_1k^2)}{a_0^2(16+3k^2)}$

0

 $-\frac{8ik(19a_0+(3a_0+197c_1)k^2)}{a_0^2(16+3k^2)^2}$

0

0

 $\Delta_{0^{+3}}^{#3}$ †

 $\frac{16(19a_0 + (3a_0 + 197c_1)k^2)}{{a_0}^2(16 + 3k^2)^2}$

 $\Delta_{0+}^{\#3}$ $-\frac{4\sqrt{\frac{2}{3}}}{16a_0+3a_0k^2}$ $\frac{16(19a_0+(3a_0+197c_1)k^2)}{a_0^2(16+3k^2)^2}$ $-\frac{16(35a_0+(6a_0+197c_1)k^2)}{3a_0^2(16+3k^2)^2}$ $\frac{8\sqrt{2}(22a_0+(3a_0+394c_1)k^2)}{3a_0^2(16+3k^2)^2}$

 $\Delta_{0^{+}}^{#2}$ †

		$\Gamma_{1}^{\#1}{}_{\alpha\beta}$	$\Gamma_{1}^{\#2}_{\alpha\beta}$	$\Gamma_{1}^{\#3}{}_{lphaeta}$	$\Gamma_{1}^{\#1}{}_{\alpha}$	$\Gamma_{1-\alpha}^{\#2}$	$\Gamma_{1}^{#3}$ α	$\Gamma_{1}^{\#4}{}_{\alpha}$	$\Gamma_{1}^{\#5}_{\alpha}$	$\Gamma_{1}^{\#6}$ α	$h_{1}^{\#1}{}_{\alpha}$
Γ ₁ ^{#1} †	$\frac{\alpha\beta}{4}$ (-	$a_0 - 15 c_1 k^2)$	$-\frac{a_0}{2\sqrt{2}}$	$5c_1k^2$	0	0	0	0	0	0	0
Γ ₁ ^{#2} †	αβ	$-\frac{a_0}{2\sqrt{2}}$	0	0	0	0	0	0	0	0	0
Γ ₁ ^{#3} †	αβ	$5c_1k^2$	0	$\frac{1}{4}(a_0-29c_1k^2)$	0	0	0	0	0	0	0
Γ ₁ -1	† ^α	0	0	0	$\frac{1}{4} \left(-a_0 - 3 c_1 k^2 \right)$	$\frac{a_0}{2\sqrt{2}}$	$\frac{5}{2} \sqrt{3} c_1 k^2$	$-\frac{5}{2} \sqrt{\frac{5}{3}} c_1 k^2$	$5\sqrt{\frac{3}{2}}c_1k^2$	$-\frac{5c_1k^2}{\sqrt{3}}$	$-\frac{i a_0 k}{4 \sqrt{2}}$
Γ ₁ ^{#2}	\dagger^{α}	0	0	0	$\frac{a_0}{2\sqrt{2}}$	0	0	0	0	0	0
Γ ₁ ^{#3}	† ^α	0	0	0	$\frac{5}{2} \sqrt{3} c_1 k^2$	0	$-\frac{a_0}{3}$	$\frac{1}{6}\sqrt{5}(a_0-8c_1k^2)$	$-\frac{a_0}{6\sqrt{2}}$	$\frac{1}{6} \left(-a_0 + 20 c_1 k^2 \right)$	$\frac{i a_0 k}{4 \sqrt{6}}$
Γ ₁ -4	† ^α	0	0	0	$-\frac{5}{2}\sqrt{\frac{5}{3}}c_1k^2$	0	$\frac{1}{6} \sqrt{5} (a_0 - 8c_1 k^2)$		'	$-\frac{1}{6} \sqrt{5} (a_0 - 5 c_1 k^2)$	$-\frac{1}{4}\bar{l}\sqrt{\frac{5}{6}}a_0k$
Γ ₁ -5	† ^α	0	0	0	$5\sqrt{\frac{3}{2}}c_1k^2$	0	$-\frac{a_0}{6\sqrt{2}}$	$-\frac{1}{6} \sqrt{\frac{5}{2}} (a_0 + 16 c_1 k^2)$	<u>a₀</u> 3	$\frac{a_0 + 40 c_1 k^2}{6 \sqrt{2}}$	$\frac{i a_0 k}{4 \sqrt{3}}$
Γ ₁ -6	† ^α	0	0	0	$-\frac{5c_1k^2}{\sqrt{3}}$	0	$\frac{1}{6} \left(-a_0 + 20 c_1 k^2 \right)$	$-\frac{1}{6} \sqrt{5} (a_0 - 5 c_1 k^2)$	$\frac{a_0 + 40 c_1 k^2}{6 \sqrt{2}}$	$\frac{5}{12} (a_0 - 17 c_1 k^2)$	$\frac{i a_0 k}{4 \sqrt{6}}$
$h_1^{\#1}$	† ^α	0	0	0	$\frac{i a_0 k}{4 \sqrt{2}}$	0	$-\frac{i a_0 k}{4 \sqrt{6}}$	$\frac{1}{4}\bar{l}\sqrt{\frac{5}{6}}a_0k$	$-\frac{i a_0 k}{4 \sqrt{3}}$	$-\frac{i a_0 k}{4 \sqrt{6}}$	0

0

0

0

0

0

0

0

 $\Gamma_{0+}^{\#3}$ $10 \sqrt{\frac{2}{3}} c_1 k^2$ $\frac{a_0}{2}$ $\frac{23c_1 k^2}{3}$ $-\frac{3a_0 + 46c_1 k^2}{6 \sqrt{2}}$ $-\frac{i a_0 k}{4 \sqrt{3}}$ $\frac{i a_0 k}{4}$

 $\frac{1}{6} (3 a_0 + 23 c_1 k^2)$

 $\begin{array}{c}
\frac{i a_0 k}{4 \sqrt{3}} \\
-\frac{i a_0 k}{4 \sqrt{6}}
\end{array}$

0

0

0

 $\begin{array}{c|c}
\frac{i a_0 k}{4 \sqrt{2}} \\
0
\end{array}$

0

 $10 \sqrt{\frac{2}{3}} c_1 k^2$ $-\frac{10c_1 k^2}{\sqrt{3}}$ $\frac{i a_0 k}{2 \sqrt{2}}$ 0

0

 $\Gamma_{0+}^{\#1}$ $\left[-a_0 + 25 c_1 k^2 \right]$

Γ₀^{#2}

 $h_{0+}^{#1}$ $-\frac{ia_0k}{2\sqrt{2}}$

h₀₊#2

ο₋₁

$-\frac{1}{2} a_0 \Gamma^{\alpha\beta\chi} \Gamma_{\beta\chi\alpha} + \frac{1}{2} a_0 \Gamma^{\alpha\beta}_{\alpha} \Gamma^{\chi}_{\beta\chi} - \frac{1}{4} a_0 h^{\chi}_{\chi} \partial_{\beta} \Gamma^{\alpha\beta}_{\alpha} +$
$\frac{1}{4} a_0 h_{\chi}^{\chi} \partial_{\beta} \Gamma^{\alpha\beta}_{\alpha} - \frac{1}{2} a_0 h_{\alpha\chi} \partial_{\beta} \Gamma^{\alpha\beta\chi} + \frac{11}{2} c_1 \partial^{\alpha} \Gamma^{\chi\delta}_{\delta} \partial_{\beta} \Gamma_{\chi\alpha}^{\beta} +$
$\frac{1}{2} c_1 \partial^{\alpha} \Gamma_{\chi\alpha}^{\ \beta} \partial_{\beta} \Gamma^{\chi\delta}_{\ \delta} - 19 c_1 \partial^{\alpha} \Gamma^{\chi\delta}_{\ \chi} \partial_{\beta} \Gamma_{\delta\alpha}^{\ \beta} + \frac{1}{2} a_0 h_{\beta\chi} \partial^{\chi} \Gamma^{\alpha}_{\ \alpha}^{\ \beta} -$
$\frac{1}{2} c_1 \partial_{\beta} \Gamma_{\chi \delta}^{\delta} \partial^{\chi} \Gamma_{\alpha}^{\alpha \beta} - \frac{1}{2} c_1 \partial_{\beta} \Gamma_{\delta \chi}^{\delta} \partial^{\chi} \Gamma_{\alpha}^{\alpha \beta} + \frac{1}{2} c_1 \partial_{\chi} \Gamma_{\beta \delta}^{\delta} \partial^{\chi} \Gamma_{\alpha}^{\alpha \beta} -$
$\frac{1}{2} c_1 \partial_\chi \Gamma^{\delta}_{\beta\delta} \partial^\chi \Gamma^{\alpha}_{\alpha}{}^{\beta} - \frac{1}{2} c_1 \partial_\chi \Gamma^{\delta}_{\delta\beta} \partial^\chi \Gamma^{\alpha}_{\alpha}{}^{\beta} - \frac{11}{2} c_1 \partial_\beta \Gamma^{\delta}_{\chi\delta} \partial^\chi \Gamma^{\alpha\beta}_{\alpha} +$
$\frac{19}{2} c_1 \partial_{\beta} \Gamma^{\delta}_{\chi \delta} \partial^{\chi} \Gamma^{\alpha \beta}_{\alpha} + \frac{11}{2} c_1 \partial_{\chi} \Gamma^{\delta}_{\beta} \partial^{\chi} \Gamma^{\alpha \beta}_{\alpha} -$
$\frac{1}{2} c_1 \partial_{\chi} \Gamma^{\delta}_{\beta\delta} \partial^{\chi} \Gamma^{\alpha\beta}_{\alpha} + c_1 \partial_{\alpha} \Gamma^{\delta}_{\chi\delta} \partial^{\chi} \Gamma^{\alpha\beta}_{\beta} - c_1 \partial_{\chi} \Gamma^{\delta}_{\alpha\delta} \partial^{\chi} \Gamma^{\alpha\beta}_{\beta} -$
$\frac{1}{2} c_1 \partial_\chi \Gamma^{\alpha\beta\chi} \partial_\delta \Gamma_{\alpha\beta}^{} - \frac{1}{2} c_1 \partial_\beta \Gamma^{\alpha\beta\chi} \partial_\delta \Gamma_{\alpha\chi}^{} - \frac{1}{2} c_1 \partial_\beta \Gamma^{\alpha\beta\chi} \partial_\delta \Gamma_{\alpha}^{} +$
$\frac{19}{2} c_1 \partial_{\chi} \Gamma^{\alpha\beta\chi} \partial_{\delta} \Gamma_{\beta\alpha}^{\delta} + c_1 \partial^{\chi} \Gamma^{\alpha\alpha}_{\beta} \partial_{\delta} \Gamma_{\beta\chi}^{\delta} + \frac{1}{2} c_1 \partial^{\chi} \Gamma^{\alpha\alpha}_{\beta} \partial_{\delta} \Gamma_{\chi\beta}^{\delta} +$
$\frac{1}{2} c_1 \partial^{\chi} \Gamma^{\alpha\beta}_{ \alpha} \partial_{\delta} \Gamma_{\chi\beta}^{ \delta} - \frac{1}{2} c_1 \partial_{\beta} \Gamma^{\alpha\beta\chi} \partial_{\delta} \Gamma_{\chi \alpha}^{ \delta} + \frac{1}{2} c_1 \partial^{\chi} \Gamma_{\beta\alpha}^{ \beta} \partial_{\delta} \Gamma_{\chi}^{ \delta\alpha} +$
$c_1 \partial^{\chi} \Gamma^{\alpha}_{\alpha}{}^{\beta} \partial_{\delta} \Gamma^{\delta}_{\chi}{}_{\beta} - \frac{1}{2} c_1 \partial_{\beta} \Gamma^{\alpha}_{\alpha}{}^{\beta} \partial_{\delta} \Gamma^{\chi}_{\chi}{}^{\delta} + c_1 \partial_{\beta} \Gamma^{\alpha}_{\alpha}{}^{\beta} \partial_{\delta} \Gamma^{\chi\delta}_{\chi} -$
$\frac{1}{2} c_1 \partial_{\beta} \Gamma^{\alpha\beta}_{ \alpha} \partial_{\delta} \Gamma^{\chi\delta}_{ \chi} + \frac{1}{2} c_1 \partial_{\alpha} \Gamma_{\beta\chi\delta} \partial^{\delta} \Gamma^{\alpha\beta\chi} + c_1 \partial_{\alpha} \Gamma_{\beta\delta\chi} \partial^{\delta} \Gamma^{\alpha\beta\chi} +$
$c_1 \partial_\alpha \Gamma_{\chi\beta\delta} \partial^\delta \Gamma^{\alpha\beta\chi} + \tfrac{1}{2} c_1 \partial_\alpha \Gamma_{\chi\delta\beta} \partial^\delta \Gamma^{\alpha\beta\chi} + c_1 \partial_\alpha \Gamma_{\delta\beta\chi} \partial^\delta \Gamma^{\alpha\beta\chi} +$
$c_1 \partial_{\alpha} \Gamma_{\delta \chi \beta} \partial^{\delta} \Gamma^{\alpha \beta \chi} - \frac{1}{2} c_1 \partial_{\beta} \Gamma_{\alpha \chi \delta} \partial^{\delta} \Gamma^{\alpha \beta \chi} - \frac{1}{2} c_1 \partial_{\beta} \Gamma_{\alpha \delta \chi} \partial^{\delta} \Gamma^{\alpha \beta \chi} - \frac{1}{2} c_2 \partial_{\beta} \Gamma_{\alpha \delta \chi} \partial^{\delta} \Gamma^{\alpha \delta \chi} - \frac{1}{2} c_3 \partial_{\beta} \Gamma_{\alpha \delta \chi} \partial^{\delta} \Gamma^{\alpha \delta \chi} - \frac{1}{2} c_3 \partial_{\beta} \Gamma_{\alpha \delta \chi} \partial^{\delta} \Gamma^{\alpha \delta \chi} - \frac{1}{2} c_3 \partial_{\beta} \Gamma_{\alpha \delta \chi} \partial^{\delta} \Gamma^{\alpha \delta \chi} - \frac{1}{2} c_3 \partial_{\beta} \Gamma_{\alpha \delta \chi} \partial^{\delta} \Gamma^{\alpha \delta \chi} - \frac{1}{2} c_3 \partial_{\beta} \Gamma_{\alpha \delta \chi} \partial^{\delta} \Gamma^{\alpha \delta \chi} - \frac{1}{2} c_3 \partial_{\beta} \Gamma_{\alpha \delta \chi} \partial^{\delta} \Gamma^{\alpha \delta \chi} - \frac{1}{2} c_3 \partial_{\beta} \Gamma_{\alpha \delta \chi} \partial^{\delta} \Gamma^{\alpha \delta \chi} - \frac{1}{2} c_3 \partial_{\beta} \Gamma_{\alpha \delta \chi} \partial^{\delta} \Gamma^{\alpha \delta \chi} $
$\frac{1}{2} c_1 \partial_{\beta} \Gamma_{\chi \delta \alpha} \partial^{\delta} \Gamma^{\alpha \beta \chi} - \frac{1}{2} c_1 \partial_{\chi} \Gamma_{\alpha \beta \delta} \partial^{\delta} \Gamma^{\alpha \beta \chi} - \frac{1}{2} c_1 \partial_{\chi} \Gamma_{\beta \alpha \delta} \partial^{\delta} \Gamma^{\alpha \beta \chi} +$
$c_1 \partial_\chi \Gamma_{\beta\delta\alpha} \partial^\delta \Gamma^{\alpha\beta\chi} - c_1 \partial_\delta \Gamma_{\alpha\beta\chi} \partial^\delta \Gamma^{\alpha\beta\chi} - c_1 \partial_\delta \Gamma_{\alpha\chi\beta} \partial^\delta \Gamma^{\alpha\beta\chi} -$
$\frac{1}{2} c_1 \partial_{\delta} \Gamma_{\beta \alpha \chi} \partial^{\delta} \Gamma^{\alpha \beta \chi} - \frac{1}{2} c_1 \partial_{\delta} \Gamma_{\beta \chi \alpha} \partial^{\delta} \Gamma^{\alpha \beta \chi} - \frac{1}{2} c_1 \partial_{\delta} \Gamma_{\chi \beta \alpha} \partial^{\delta} \Gamma^{\alpha \beta \chi} -$
11 $\alpha = \beta \circ \delta = \alpha y$ 1 $\alpha = \beta \circ \delta = y$ 1 $\alpha = \beta \circ \delta = y \alpha$

Lagrangian density

Added source term:	$h^{\alpha\beta} \mathcal{T}_{\alpha\beta} + \Gamma^{\alpha\beta\lambda}$	$^{\prime}$ $\Delta_{lphaeta\chi}$
	Massive partic	le
$J^P = 1^- /$	Pole residue:	$\frac{3287 a_0 + 323862 c_1}{35937 c_1 (a_0 + 66 c_1)} > 0$
7	Polarisations:	3
	Sauara macci	$a_0 \sim 0$

Spin:

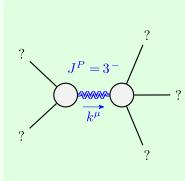
Parity:

Odd

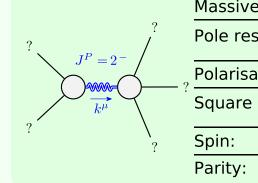
 $\frac{11}{2} c_1 \partial_{\beta} \Gamma_{\delta \alpha}^{\quad \beta} \partial^{\delta} \Gamma^{\alpha \chi}_{\quad \chi} - \frac{1}{2} c_1 \partial^{\alpha} \Gamma_{\delta \alpha}^{\quad \beta} \partial^{\delta} \Gamma_{\beta \chi}^{\quad \chi} + \frac{1}{2} c_1 \partial_{\beta} \Gamma_{\delta \alpha}^{\quad \beta} \partial^{\delta} \Gamma^{\chi \alpha}_{\quad \chi}$

? /	Po
$\searrow J^P = 1^+$	
$\sqrt{J^{-}} = 1$	
	Po
	ှ ၊ ပ
	:
\nearrow	Sq
k^{μ}	99
\	
?	
'	Sp
?	Jρ
	D-

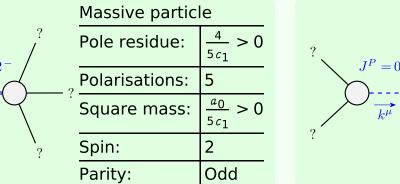
	Massive particle						
$J^P = 1^+$	Pole residue:	$-\frac{4164}{24389c_1} > 0$					
2	Polarisations:	3					
$\frac{1}{k^{\mu}}$	Square mass:	$\frac{a_0}{29c_1} > 0$					
?	Spin:	1					
	Parity:	Even					

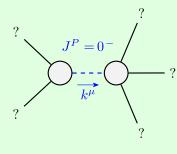


	Massive particle			
$J^P = 3^-$	Pole residue:	$\frac{2}{7c_1} > 0$		
7 = 5 	Polarisations:	7		
$\overrightarrow{k^{\mu}}$	Square mass:	$-\frac{a_0}{7c_1} > 0$		
?	Spin:	3		
	Parity:	Odd		



0

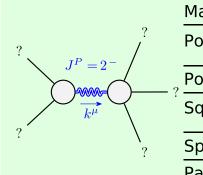




 $\Delta_{0}^{#1}$

0

	Massive particle					
- ?	Pole residue:	$-\frac{2}{c_1} > 0$				
	Polarisations:	1				
	Square mass:	$\frac{a_0}{c_1} > 0$				
	Spin:	0				
	Parity:	Odd				



 $\Delta_{2}^{\#3}_{+\alpha\beta}$

 $\frac{4}{\sqrt{3} a_0}$

 $-\frac{2\sqrt{2}(a_0+52c_1k^2)}{3a_0^2}$

 $\frac{8(a_0-26c_1k^2)}{3a_0^2}$

 $4i\sqrt{\frac{2}{3}}(a_0+31c_1k^2)$

0

0

 $-\frac{8(a_0+13c_1k^2)}{3a_0^2}$

 $-\frac{2\sqrt{2}(a_0+52c_1k^2)}{3a_0^2}$

 $\frac{4i(a_0+31c_1k^2)}{\sqrt{3}a_0^2k}$

0

 ${\cal T}_{2}^{\#1}{}_{lphaeta}$

 $\frac{4i\sqrt{2}}{a_0k}$

 $-\frac{4\,i\,(a_0+31\,c_1\,k^2)}{\sqrt{3}\,{a_0}^2\,k}$

 $4i\sqrt{\frac{2}{3}}(a_0+31c_1k^2)$

 $-\frac{8(a_0+11c_1k^2)}{{a_0}^2k^2}$

0

0

 $\Delta_{2^{-}\alpha\beta\chi}^{\#1}$ $\Delta_{2^{-}\alpha\beta\chi}^{\#2}$

0

0

0

0

0

0

0

0

 $\frac{4}{a_0 - c_1 k^2}$

0

	Massive particle					
?	Pole residue:	$\frac{4}{c_1} > 0$				
, 	Polarisations:	5				
· · ·	Square mass:	$\frac{a_0}{c_1} > 0$				
?	Spin:	2				
	Parity:	Odd				

Source constraints	
SO(3) irreps	#
$2\mathcal{T}_{0^{+}}^{\#2} - \bar{\imath} k \Delta_{0^{+}}^{\#2} == 0$	1
$\Delta_{0^{+}}^{\#3} + 2 \Delta_{0^{+}}^{\#4} + 3 \Delta_{0^{+}}^{\#2} == 0$	1
$6 \mathcal{T}_{1}^{\#1\alpha} - i k (3 \Delta_{1}^{\#2\alpha} - \Delta_{1}^{\#5\alpha} + \Delta_{1}^{\#3\alpha}) == 0$	3
$2 \Delta_{1}^{\#6\alpha} + \Delta_{1}^{\#4\alpha} + 2 \Delta_{1}^{\#5\alpha} + \Delta_{1}^{\#3\alpha} == 0$	3
Total #:	8
	,, 1
Γ#1	Λ#-

 $\Gamma_{3}^{\#1} + \alpha \beta x = \frac{1}{2} (-a_0 - 7 c_1 k^2)$

	12	(40 - 1	/ C ₁ K ²	<u> </u>	4 √6		
		$-\frac{ia_0}{4}$	<u>o k</u> √6		0		
$\Gamma_{2}^{#2} \uparrow^{\alpha\beta\chi}$	$\Gamma_{2}^{#1} \uparrow^{\alpha\beta\chi}$	$h_{2}^{#1}$	Γ#3 2+	Γ#2 2+	Γ ₂ ^{#1}		
αβχ	αβχ	$h_{2}^{#1} + \alpha \beta$	$\Gamma_{2+}^{#3} + \alpha\beta$	$\Gamma_{2}^{#2} + \alpha \beta$	$+ \alpha \beta \frac{1}{4}$		
		- <u>i</u> i	<u>5 c</u>	$-5\sqrt{\frac{2}{3}}c_1k^2$	$\frac{1}{2^{+}} + \alpha \beta \frac{1}{4} (a_0 + 11 c_1 k^2)$	Γ#	
0	0	$-\frac{i a_0 k}{4 \sqrt{2}}$	$\frac{5c_1k^2}{\sqrt{3}}$	$\frac{1}{3} c_1 k$	11 01	$\Gamma_{2}^{\#1}_{+} \alpha \beta$	
					k ²)		
0	0	$-\frac{ia}{4}$	- <u>c</u>]	(-3 <i>a</i> ₀	-5 -5	Γ#3	
O	0	$-\frac{i a_0 k}{4 \sqrt{3}}$	$-\frac{c_1 k^2}{6 \sqrt{2}}$	$\frac{1}{6} \left(-3 a_0 + c_1 k^2 \right)$	$-5\sqrt{\frac{2}{3}} c_1 k^2$	$\Gamma_{2}^{#2} + \alpha \beta$	
			1 12	,2)			
0	0	$\frac{i a_0 k}{4 \sqrt{6}}$	$(3 a_0)$	$-\frac{c_1 k^2}{6 \sqrt{2}}$	$\frac{5c_1 k^2}{\sqrt{3}}$	$\Gamma_{2}^{\#3} + \alpha \beta$	
		61/2	$\frac{1}{12} (3 a_0 + c_1 k^2) -$	<u>k</u> 2 √2	^ω ਨ	αβ	
0	0	0	$\left -\frac{ia_0k}{4\sqrt{6}} \right $	$\frac{i a_0 k}{4 \sqrt{3}}$	$\frac{i a_0 k}{4 \sqrt{2}}$	$h_{2}^{\#1} \alpha \beta$	
	4 1		0 k	ω _×	2 7	αβ	
0	$\frac{1}{4} (a_0 - c_1 k^2)$	0	0	0	0	$\Gamma_{2^{-}}^{\#1} \alpha \beta \chi$	
	$(1 k^2)$					βχ	
$\frac{1}{4}(a_0)$						Γ ₂ #	
$\frac{1}{4} (a_0 - 5 c_1 k^2)$	0	0	0	0	0	$\Gamma_{2^{-}}^{#2} \alpha \beta \chi$	
2)							

$-5c_1k^2$		

? k^{μ} ? ?	Quadratic pole Pole residue: Polarisations:	$-\frac{1}{a_0} > 0$
Unitarity conditions		

(Unitarity is demonstrably impossible)