	$\Delta_{1}^{\#1}{}_{lphaeta}$	$\Delta_{1}^{\#2}{}_{\alpha\beta}$	$\Delta_{1^{+}lphaeta}^{\#3}$	$\Delta_1^{\#1}{}_{lpha}$	$\Delta_{1-lpha}^{\#2}$	$\Delta_{1}^{\#3}{}_{lpha}$	$\Delta_{1}^{\#4}{}_{lpha}$	$\Delta_1^{\#5}{}_{lpha}$	$\Delta_{1^{-}\alpha}^{\#6}$	${\mathcal T}_{1-lpha}^{\sharp 1}$
$\Delta_{1}^{\#1} \dagger^{\alpha\beta}$	0	$-\frac{2\sqrt{2}}{a_0}$	0	0	0	0	0	0	0	0
$\Delta_{1}^{#2} \dagger^{\alpha\beta}$	$-\frac{2\sqrt{2}}{a_0}$	$\frac{2 (a_0^2 - 14 a_0 c_1 k^2 - 35 c_1^2 k^4)}{a_0^2 (a_0 - 29 c_1 k^2)}$	$\frac{40\sqrt{2}c_1k^2}{a_0^2 - 29a_0c_1k^2}$	0	0	0	0	0	0	0
$\Delta_{1}^{#3} \dagger^{\alpha\beta}$	0	$\frac{40 \sqrt{2} c_1 k^2}{a_0^2 - 29 a_0 c_1 k^2}$	$\frac{4}{a_0-29c_1k^2}$	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	$-\frac{2i\sqrt{2}k}{a_0(2+k^2)}$
$\Delta_1^{#2} \dagger^{\alpha}$	0	0	0	$\frac{\sqrt{2} (4+k^2)}{a_0 (2+k^2)}$	$\frac{a_0^2 (4+k^2)^2 - 30 a_0 c_1 k^2 (4+k^2) (4+3 k^2) + c_1^2 k^4 (6416+7928 k^2+1901 k^4)}{2 a_0^2 (2+k^2)^2 (a_0-33 c_1 k^2)}$	$\frac{k^2 (a_0^2 (-2+k^2) + a_0 c_1 (560 + 302 k^2 + 71 k^4) - 2 c_1^2 k^2 (9440 + 1901 k^2 (4+k^2)))}{2 \sqrt{6} a_0^2 (2+k^2)^2 (a_0 - 33 c_1 k^2)}$	$-\frac{\sqrt{\frac{5}{6}} k^2 (a_0+c_1 (40-31 k^2))}{2 a_0 (2+k^2) (a_0-33 c_1 k^2)}$	$\frac{k^2 (2 a_0^2 (5 + 2 k^2) - a_0 c_1 (880 + 778 k^2 + 199 k^4) + c_1^2 k^2 (9440 + 1901 k^2 (4 + k^2)))}{2 \sqrt{3} a_0^2 (2 + k^2)^2 (a_0 - 33 c_1 k^2)}$	$\frac{k^2 \left(-a_0 + c_1 \left(200 + 43 k^2\right)\right)}{\sqrt{6} a_0 \left(2 + k^2\right) \left(a_0 - 33 c_1 k^2\right)}$	$-\frac{i k (-30 a_0 c_1 k^4 + a_0^2 (4 + k^2) + 27 c_1^2 k^4 (-28 + 3 k^2))}{a_0^2 (2 + k^2)^2 (a_0 - 33 c_1 k^2)}$
$\Delta_1^{#3} \uparrow^{\alpha}$	0	0	0	$-\frac{2k^2}{\sqrt{3}(2a_0+a_0k^2)}$	$\frac{k^2 \left(a_0^2 \left(-2+k^2\right)+a_0 c_1 \left(560+302 k^2+71 k^4\right)-2 c_1^2 k^2 \left(9440+1901 k^2 \left(4+k^2\right)\right)\right)}{2 \sqrt{6} \ a_0^2 \left(2+k^2\right)^2 \left(a_0-33 c_1 k^2\right)}$	$\frac{-a_0^2 \left(76+52 k^2+3 k^4\right)+4 a_0 c_1 k^2 \left(472+214 k^2+19 k^4\right)+4 c_1^2 k^4 \left(5120+7280 k^2+1901 k^4\right)}{12 a_0^2 \left(2+k^2\right)^2 \left(a_0-33 c_1 k^2\right)}$	$\frac{\sqrt{5} (10 a_0 + (3 a_0 - 328 c_1) k^2 - 62 c_1 k^4)}{12 a_0 (2 + k^2) (a_0 - 33 c_1 k^2)}$	$\frac{2{a_0}^2(-2+k^2) + a_0c_1k^2(472 + 934k^2 + 289k^4) - 2c_1^2k^4(5120 + 7280k^2 + 1901k^4)}{6\sqrt{2}{a_0}^2(2+k^2)^2(a_0 - 33c_1k^2)}$	$-\frac{2 a_0 + (3 a_0 - 56 c_1) k^2 + 86 c_1 k^4}{6 a_0 (2 + k^2) (a_0 - 33 c_1 k^2)}$	$\frac{i k (54 c_1^2 k^4 (40 + 3 k^2) + a_0^2 (6 + 5 k^2) - 3 a_0 c_1 k^2 (86 + 23 k^2))}{\sqrt{6} a_0^2 (2 + k^2)^2 (a_0 - 33 c_1 k^2)}$
$\Delta_1^{#4} \dagger^{\alpha}$	0	0	0	0	$-\frac{\sqrt{\frac{5}{6}} k^2 (a_0+c_1 (40-31 k^2))}{2 a_0 (2+k^2) (a_0-33 c_1 k^2)}$	$\frac{\sqrt{5} (10 a_0 + k^2 (3 a_0 - 2 c_1 (164 + 31 k^2)))}{12 a_0 (2 + k^2) (a_0 - 33 c_1 k^2)}$	1 12 a ₀ -396 c ₁ k ²	$\frac{\sqrt{\frac{5}{2}} \left(-2 a_0 + c_1 k^2 \left(164 + 31 k^2\right)\right)}{6 a_0 \left(2 + k^2\right) \left(a_0 - 33 c_1 k^2\right)}$	$-\frac{\sqrt{5}}{6(a_0-33c_1k^2)}$	$-\frac{i\sqrt{\frac{5}{6}}k(a_0-51c_1k^2)}{a_0(2+k^2)(a_0-33c_1k^2)}$
$\Delta_1^{#5} \dagger^{\alpha}$	0	0	0	$\frac{\sqrt{\frac{2}{3}} k^2}{2 a_0 + a_0 k^2}$	$\frac{k^2 \left(2 a_0^2 (5 + 2 k^2) - a_0 c_1 (880 + 778 k^2 + 199 k^4) + c_1^2 k^2 (9440 + 1901 k^2 (4 + k^2))\right)}{2 \sqrt{3} a_0^2 (2 + k^2)^2 (a_0 - 33 c_1 k^2)}$	$\frac{2{a_0}^2(-2+k^2) + a_0c_1k^2(472 + 934k^2 + 289k^4) - 2c_1^2k^4(5120 + 7280k^2 + 1901k^4)}{6\sqrt{2}a_0^2(2+k^2)^2(a_0 - 33c_1k^2)}$	$\frac{\sqrt{\frac{5}{2}} \left(-2 a_0 + c_1 k^2 \left(164 + 31 k^2\right)\right)}{6 a_0 \left(2 + k^2\right) \left(a_0 - 33 c_1 k^2\right)}$	$\frac{4 a_0^2 (17 + 14 k^2 + 3 k^4) - 4 a_0 c_1 k^2 (236 + 287 k^2 + 77 k^4) + c_1^2 k^4 (5120 + 7280 k^2 + 1901 k^4)}{6 a_0^2 (2 + k^2)^2 (a_0 - 33 c_1 k^2)}$	$-\frac{c_1 k^2 (28-43 k^2)+2 a_0 (7+3 k^2)}{3 \sqrt{2} a_0 (2+k^2) (a_0-33 c_1 k^2)}$	$\frac{i k (2 a_0^2 (3+k^2)-27 c_1^2 k^4 (40+3 k^2)+3 a_0 c_1 k^2 (34+7 k^2))}{\sqrt{3} a_0^2 (2+k^2)^2 (a_0-33 c_1 k^2)}$
$\Delta_1^{\#6} \uparrow^{lpha}$	0	0	0	0	$\frac{k^2 \left(-a_0 + c_1 \left(200 + 43 k^2\right)\right)}{\sqrt{6} \ a_0 \left(2 + k^2\right) \left(a_0 - 33 c_1 k^2\right)}$	$-\frac{2a_0 + (3a_0 - 56c_1)k^2 + 86c_1k^4}{6a_0(2+k^2)(a_0 - 33c_1k^2)}$	$-\frac{\sqrt{5}}{6(a_0-33c_1k^2)}$	$-\frac{c_1 k^2 (28-43 k^2)+2 a_0 (7+3 k^2)}{3 \sqrt{2} a_0 (2+k^2) (a_0-33 c_1 k^2)}$	5 3 (a ₀ -33 c ₁ k ²)	$-\frac{i\sqrt{\frac{2}{3}}k(a_0+57c_1k^2)}{a_0(2+k^2)(a_0-33c_1k^2)}$
${\mathcal T}_1^{\sharp 1} {\dagger}^{lpha}$	0	0	0	$\frac{2i\sqrt{2}k}{2a_0+a_0k^2}$	$\frac{i(-30a_0c_1k^5 + a_0^2k(4+k^2) + 27c_1^2k^5(-28+3k^2))}{a_0^2(2+k^2)^2(a_0-33c_1k^2)}$	$-\frac{i(54c_1^2k^5(40+3k^2)+a_0^2k(6+5k^2)-3a_0c_1k^3(86+23k^2))}{\sqrt{6}a_0^2(2+k^2)^2(a_0-33c_1k^2)}$	$\frac{i\sqrt{\frac{5}{6}}k(a_0-51c_1k^2)}{a_0(2+k^2)(a_0-33c_1k^2)}$	$-\frac{i(2a_0^2k(3+k^2)-27c_1^2k^5(40+3k^2)+3a_0c_1k^3(34+7k^2))}{\sqrt{3}a_0^2(2+k^2)^2(a_0-33c_1k^2)}$	$\frac{i\sqrt{\frac{2}{3}}k(a_0+57c_1k^2)}{a_0(2+k^2)(a_0-33c_1k^2)}$	$\frac{2k^{2}(a_{0}^{2}+30a_{0}c_{1}k^{2}-459c_{1}^{2}k^{4})}{a_{0}^{2}(2+k^{2})^{2}(a_{0}-33c_{1}k^{2})}$

 $\Delta_{0^{+4}}^{#4}$ †

 $\Delta_{0^{+3}}^{#3}$ †

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

	$\Gamma_{1}^{\#1}{}_{lphaeta}$	$\Gamma_{1}^{\#2}_{\alpha\beta}$	$\Gamma_{1}^{\#3}{}_{\alpha\beta}$	$\Gamma_{1}^{\#1}{}_{\alpha}$	Γ ₁ - α	Γ ₁ - α	Γ ₁ - α	Γ ₁ - α	Γ ₁ - α	$h_{1^{-}\alpha}^{\#1}$
$\Gamma_{1}^{#1} \dagger^{\alpha\beta}$	$\frac{1}{4} \left(-a_0 - 15 c_1 k^2 \right)$	$-\frac{a_0}{2\sqrt{2}}$	$5c_1k^2$	0	0	0	0	0	0	0
$\Gamma_{1}^{#2} \dagger^{\alpha\beta}$	$-\frac{a_0}{2\sqrt{2}}$	0	0	0	0	0	0	0	0	0
$\Gamma_{1}^{\#3} \dagger^{\alpha\beta}$	$5c_1k^2$	0	$\frac{1}{4} (a_0 - 29 c_1 k^2)$	0	0	0	0	0	0	0
Γ ₁ . † α	0	0	0	$\frac{1}{4} \left(-a_0 - 3 c_1 k^2 \right)$	$\frac{a_0}{2\sqrt{2}}$	$\frac{5}{2} \sqrt{3} c_1 k^2$	$-\frac{5}{2}\sqrt{\frac{5}{3}}c_1k^2$	$5\sqrt{\frac{3}{2}}c_1k^2$	$-\frac{5c_1k^2}{\sqrt{3}}$	$-\frac{i a_0 k}{4 \sqrt{2}}$
$\Gamma_1^{\#2} \uparrow^{\alpha}$	0	0	0	$\frac{a_0}{2\sqrt{2}}$	0	0	0	0	0	0
$\Gamma_1^{#3} \uparrow^{\alpha}$	0	0	0	$\frac{5}{2} \sqrt{3} c_1 k^2$	0	$-\frac{a_0}{3}$	$\frac{1}{6}\sqrt{5}(a_0-8c_1k^2)$	$-\frac{a_0}{6\sqrt{2}}$	$\frac{1}{6} \left(-a_0 + 20 c_1 k^2 \right)$	<u>i a₀ k</u> 4 √6
$\Gamma_{1}^{\#4} + ^{\alpha}$	0	0	0	$-\frac{5}{2} \sqrt{\frac{5}{3}} c_1 k^2$	0	$\frac{1}{6} \sqrt{5} (a_0 - 8c_1 k^2)$		'	$-\frac{1}{6}\sqrt{5}(a_0-5c_1k^2)$	$-\frac{1}{4}\bar{l}\sqrt{\frac{5}{6}}a_0k$
$\Gamma_{1}^{\#5} + \alpha$	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	$\frac{a_0 + 40 c_1 k^2}{6 \sqrt{2}}$	$\frac{i a_0 k}{4 \sqrt{3}}$
$\Gamma_{1}^{\#6} + ^{\alpha}$	0	0	0	$-\frac{5c_1k^2}{\sqrt{3}}$	0	$\frac{1}{6} \left(-a_0 + 20 c_1 k^2 \right)$	$-\frac{1}{6} \sqrt{5} (a_0 - 5 c_1 k^2)$	$\frac{a_0 + 40 c_1 k^2}{6 \sqrt{2}}$	$\frac{5}{12} (a_0 - 17 c_1 k^2)$	<u>i a₀ k</u> 4 √6
$h_1^{#1} +^{\alpha}$	0	0	0	$\frac{i a_0 k}{4 \sqrt{2}}$	0	$-\frac{i a_0 k}{4 \sqrt{6}}$	$\frac{1}{4}\bar{l}\sqrt{\frac{5}{6}}a_0k$	$-\frac{i a_0 k}{4 \sqrt{3}}$	$-\frac{ia_0k}{4\sqrt{6}}$	0

0

0

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

Lagrangian density
$\frac{1}{2} a_0 \Gamma^{\alpha\beta\chi} \Gamma_{\beta\chi\alpha} + \frac{1}{2} a_0 \Gamma^{\alpha\beta}_{\alpha} \Gamma^{\chi}_{\beta\chi} - \frac{1}{4} a_0 h^{\chi}$
$\frac{1}{2} a_0 h^{\chi} \partial_{\alpha} \Gamma^{\alpha\beta} - \frac{1}{2} a_0 h \partial_{\alpha} \Gamma^{\alpha\beta\chi} + \frac{11}{2} c_1 \partial_{\alpha}$

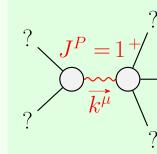
 $\frac{1}{4} a_0 h_{\chi}^{\chi} \partial_{\beta} \Gamma^{\alpha\beta}{}_{\alpha} - \frac{1}{2} a_0 h_{\alpha\chi} \partial_{\beta} \Gamma^{\alpha\beta\chi} + \frac{11}{2} c_1 \partial^{\alpha} \Gamma^{\chi\delta}{}_{\delta} \partial_{\beta} \Gamma_{\chi\alpha}{}^{\beta} +$ $\frac{1}{2} c_1 \partial^{\alpha} \Gamma_{\chi\alpha}^{\ \beta} \partial_{\beta} \Gamma^{\chi\delta}_{\ \delta} - 19 c_1 \partial^{\alpha} \Gamma^{\chi\delta}_{\ \chi} \partial_{\beta} \Gamma_{\delta\alpha}^{\ \beta} + \frac{1}{2} a_0 h_{\beta\chi} \partial^{\chi} \Gamma^{\alpha}_{\ \alpha}^{\ \beta} \frac{1}{2} c_1 \partial_{\beta} \Gamma_{\chi \delta}^{\delta} \partial^{\chi} \Gamma_{\alpha}^{\alpha \beta} - \frac{1}{2} c_1 \partial_{\beta} \Gamma_{\delta \chi}^{\delta} \partial^{\chi} \Gamma_{\alpha}^{\alpha \beta} + \frac{1}{2} c_1 \partial_{\chi} \Gamma_{\beta \delta}^{\delta} \partial^{\chi} \Gamma_{\alpha}^{\alpha \beta} \frac{1}{2} c_1 \partial_{\chi} \Gamma^{\delta}_{\beta\delta} \partial^{\chi} \Gamma^{\alpha}_{\alpha}^{\beta} - \frac{1}{2} c_1 \partial_{\chi} \Gamma^{\delta}_{\delta\beta} \partial^{\chi} \Gamma^{\alpha}_{\alpha}^{\beta} - \frac{11}{2} c_1 \partial_{\beta} \Gamma^{\delta}_{\chi\delta} \partial^{\chi} \Gamma^{\alpha\beta}_{\alpha} +$ $\frac{19}{2} c_1 \partial_{\beta} \Gamma^{\delta}_{\chi \delta} \partial^{\chi} \Gamma^{\alpha \beta}_{\alpha} + \frac{11}{2} c_1 \partial_{\chi} \Gamma^{\delta}_{\beta \delta} \partial^{\chi} \Gamma^{\alpha \beta}_{\alpha} -$

 $\frac{1}{2} c_1 \partial_{\chi} \Gamma^{\delta}_{\beta \delta} \partial^{\chi} \Gamma^{\alpha \beta}_{\alpha} + c_1 \partial_{\alpha} \Gamma^{\delta}_{\chi \delta} \partial^{\chi} \Gamma^{\alpha \beta}_{\beta} - c_1 \partial_{\chi} \Gamma^{\delta}_{\alpha \delta} \partial^{\chi} \Gamma^{\alpha \beta}_{\beta} \frac{1}{2} c_1 \partial_\chi \Gamma^{\alpha\beta\chi} \partial_\delta \Gamma_{\alpha\beta}^{} - \frac{1}{2} c_1 \partial_\beta \Gamma^{\alpha\beta\chi} \partial_\delta \Gamma_{\alpha\chi}^{} - \frac{1}{2} c_1 \partial_\beta \Gamma^{\alpha\beta\chi} \partial_\delta \Gamma_{\alpha}^{} +$ $\frac{19}{2} c_1 \partial_{\chi} \Gamma^{\alpha\beta\chi} \partial_{\delta} \Gamma_{\beta\alpha}^{\quad \ \, \delta} + c_1 \partial^{\chi} \Gamma^{\alpha \quad \beta}_{\quad \ \, \alpha} \partial_{\delta} \Gamma_{\beta \quad \chi}^{\quad \ \, \delta} + \frac{1}{2} c_1 \partial^{\chi} \Gamma^{\alpha \quad \beta}_{\quad \ \, \alpha} \partial_{\delta} \Gamma_{\chi\beta}^{\quad \ \, \delta} +$ $\frac{1}{2} c_1 \partial^\chi \Gamma^{\alpha\beta}_{\alpha} \partial_\delta \Gamma_{\chi\beta}^{\delta} - \frac{1}{2} c_1 \partial_\beta \Gamma^{\alpha\beta\chi} \partial_\delta \Gamma_{\chi\alpha}^{\delta} + \frac{1}{2} c_1 \partial^\chi \Gamma_{\beta\alpha}^{\beta} \partial_\delta \Gamma_{\chi\alpha}^{\delta\alpha} +$ $c_1 \partial^{\chi} \Gamma^{\alpha}_{\alpha}{}^{\beta} \partial_{\delta} \Gamma^{\delta}_{\chi}{}^{\beta} - \frac{1}{2} c_1 \partial_{\beta} \Gamma^{\alpha}_{\alpha}{}^{\beta} \partial_{\delta} \Gamma^{\chi}_{\chi}{}^{\delta} + c_1 \partial_{\beta} \Gamma^{\alpha}_{\alpha}{}^{\beta} \partial_{\delta} \Gamma^{\chi\delta}_{\chi} \frac{1}{2} c_1 \partial_{\beta} \Gamma^{\alpha\beta}{}_{\alpha} \partial_{\delta} \Gamma^{\chi\delta}{}_{\chi} + \frac{1}{2} c_1 \partial_{\alpha} \Gamma_{\beta\chi\delta} \partial^{\delta} \Gamma^{\alpha\beta\chi} + c_1 \partial_{\alpha} \Gamma_{\beta\delta\chi} \partial^{\delta} \Gamma^{\alpha\beta\chi} +$ $c_1 \, \partial_\alpha \Gamma_{\chi\beta\delta} \, \partial^\delta \Gamma^{\alpha\beta\chi} + \tfrac{1}{2} \, c_1 \, \partial_\alpha \Gamma_{\chi\delta\beta} \, \partial^\delta \Gamma^{\alpha\beta\chi} + c_1 \, \partial_\alpha \Gamma_{\delta\beta\chi} \, \partial^\delta \Gamma^{\alpha\beta\chi} +$ $c_1 \, \partial_\alpha \Gamma_{\delta \chi \beta} \, \partial^\delta \Gamma^{\alpha \beta \chi} - \tfrac{1}{2} \, c_1 \, \partial_\beta \Gamma_{\alpha \chi \delta} \, \partial^\delta \Gamma^{\alpha \beta \chi} - \tfrac{1}{2} \, c_1 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \beta \chi} - \tfrac{1}{2} \, c_2 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, c_3 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, c_4 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, c_5 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, c_5 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, c_5 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, c_5 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, c_5 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, c_5 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, c_5 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, c_5 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, c_5 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, c_5 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, c_5 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, c_5 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, c_5 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, c_5 \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} - \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma_{\alpha \delta \chi} \, \partial^\delta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta \Gamma^{\alpha \delta \chi} + \tfrac{1}{2} \, \partial_\beta$ $\frac{1}{2} c_1 \partial_{\beta} \Gamma_{\chi \delta \alpha} \partial^{\delta} \Gamma^{\alpha \beta \chi} - \frac{1}{2} c_1 \partial_{\chi} \Gamma_{\alpha \beta \delta} \partial^{\delta} \Gamma^{\alpha \beta \chi} - \frac{1}{2} c_1 \partial_{\chi} \Gamma_{\beta \alpha \delta} \partial^{\delta} \Gamma^{\alpha \beta \chi} +$

2 2
$c_1 \partial_\chi \Gamma_{\beta\delta\alpha} \partial^\delta \Gamma^{\alpha\beta\chi} - c_1 \partial_\delta \Gamma_{\alpha\beta\chi} \partial^\delta \Gamma^{\alpha\beta\chi} - c_1 \partial_\delta \Gamma_{\alpha\chi\beta} \partial^\delta \Gamma^{\alpha\beta\chi} -$
$\frac{1}{2} c_1 \partial_{\delta} \Gamma_{\beta \alpha \chi} \partial^{\delta} \Gamma^{\alpha \beta \chi} - \frac{1}{2} c_1 \partial_{\delta} \Gamma_{\beta \chi \alpha} \partial^{\delta} \Gamma^{\alpha \beta \chi} - \frac{1}{2} c_1 \partial_{\delta} \Gamma_{\chi \beta \alpha} \partial^{\delta} \Gamma^{\alpha \beta \chi} -$
$\frac{11}{2} c_1 \partial_{\beta} \Gamma_{\delta \alpha}^{\ \beta} \partial^{\delta} \Gamma^{\alpha \chi}_{\ \chi} - \frac{1}{2} c_1 \partial^{\alpha} \Gamma_{\delta \alpha}^{\ \beta} \partial^{\delta} \Gamma_{\beta \ \chi}^{\ \chi} + \frac{1}{2} c_1 \partial_{\beta} \Gamma_{\delta \alpha}^{\ \beta} \partial^{\delta} \Gamma^{\chi \alpha}_{\ \chi}$
Added source term: $h^{\alpha\beta} \mathcal{T}_{\alpha\beta} + \Gamma^{\alpha\beta\chi} \Delta_{\alpha\beta\chi}$

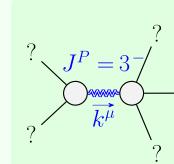
	$ \cdots \rangle \alpha \beta$	$-\alpha\beta\chi$	
	Massive partic	le	
?	Dala manidus	$3287a_0 + 323862c_1 > 0$	

	Pole residue:	$\frac{1}{35937c_1(a_0+66c_1)}$		
	Polarisations:	3		
	Square mass:	$\frac{a_0}{33c_1} > 0$		
	Spin:	1		
	Parity:	Odd		



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

0 0 0



0

0 0 0 $\frac{1}{4}(a_0 - 5c_1 k^2)$

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

0 0 0 F₀...

η₀₊#2

	Massive particle				
	Pole residue:	$\frac{2}{7c_1} > 0$			
_ ?	Polarisations:	7			
— <u>:</u>	Square mass:	$-\frac{a_0}{7c_1} > 0$			
	Spin:	3			
	Parity:	Odd			

0

0

0

0

0

? $J^P = 2^{-}$
? \overrightarrow{k}^{μ} ?

0

0

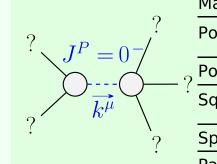
0

0

Massive parti	icle	
Pole residue:	$\frac{4}{5c_1} > 0$? $I^P = 0$
Polarisations	: 5	3 - 0
Square mass	$: \frac{a_0}{5c_1} > 0$	\vec{k}^{μ}
Spin:	2	!
Parity:	Odd	

0

0



	Massive particle				
$P = 0^{-1}$	Pole residue:	$-\frac{2}{c_1} >$			
2	Polarisations:	1			
$\overrightarrow{k^{\mu}}$	Square mass:	$\frac{a_0}{c_1} > 0$			
?	Spin:	0			
•	Dority	044			

? $J^P = 2^{-/}$?
$? \frac{k^{\mu}}{k^{\mu}}$?

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

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

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

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

0

0

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

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

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

0

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

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

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

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

 $-\frac{8 \left(a_0 + 11 c_1 k^2\right)}{{a_0}^2 k^2}$

0

0

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

0

0

 $\frac{4}{a_0-5c_1k^2}$

0

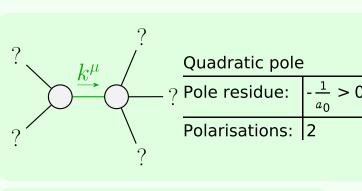
 $\frac{4}{a_0 - c_1 k^2}$

0

	Massive particle								
$P = 2^{-/}$	Pole residue:	$\left \frac{4}{c_1} > 0\right $							
2	Polarisations:	5							
$\overrightarrow{k^{\mu}}$	Square mass:	$\frac{a_0}{c_1} > 0$							
?	Spin:	2							
·	Parity:	Odd							

Source constraints	
SO(3) irreps	#
$2\mathcal{T}_{0^{+}}^{\#2} - ik\Delta_{0^{+}}^{\#2} == 0$	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
$\Gamma^{\#1}_{3^- \alpha \beta \chi}$	$\Delta_{3^{-} \ lphaeta\chi}^{\# 1}$
$\Gamma_{3}^{\#1} + {}^{\alpha\beta\chi} \left[\frac{1}{2} \left(-a_0 - 7 c_1 k^2 \right) \right] \qquad \Delta_{3}^{\#1} + {}^{\alpha\beta\chi} \left[-\frac{1}{a} \right]$	$\frac{2}{0+7c_1k^2}$

$\Delta_1^{*4} + 2 \Delta_1^{*3} +$	$\Delta_1^{\#_3\alpha} == 0$	3
		8
$\Gamma_{3}^{\#1}{}_{\alpha\beta\chi}$		$\Delta_{3}^{#1}_{\alpha\beta\chi}$
$\frac{1}{2} \left(-a_0 - 7 c_1 k^2 \right)$	$\Delta_{3}^{\#1} \dagger^{\alpha\beta\chi}$	$-\frac{2}{a_0+7c_1k^2}$



Unitarity conditions
(Unitarity is demonstrably impossible)

			-				- , _								, ,					1	2				
$-\frac{i}{4}$	$\frac{i a_0 k}{4 \sqrt{6}} \qquad \qquad \frac{1}{4} \bar{l} \sqrt{\frac{5}{6}} a_0 k$					$-\frac{i a_0 k}{4 \sqrt{3}}$			$-\frac{i a_0 k}{4 \sqrt{6}}$				0			0	$\frac{(19a_0 + (3a_0 + 197c_1)k^2)}{a_0^2 (16 + 3k^2)^2}$	$\frac{8i(a_0-65c_1k^2)}{\sqrt{3}a_0^2k(16+3k^2)}$	$\frac{2(22a_0 + (3a_0 + 394c_1)k^2)}{3a_0^2(16 + 3k^2)^2}$	$\frac{3a_0 + (6a_0 + 197c_1)k^2)}{3a_0^2 (16 + 3k^2)^2}$	$\frac{(19a_0 + (3a_0 + 197c_1)k^2)}{a_0^2 (16 + 3k^2)^2}$	$-\frac{4\sqrt{\frac{2}{3}}}{16a_0+3a_0k^2}$	$\Delta_{0}^{#3}$		
	Γ ₀ -1 +	h ₀ ^{#2} †	h ₀ ^{#1} +	Γ ₀ ^{#4} †	Γ ₀ ^{#3} †	Γ ₀ ^{#2} †	$\Gamma_{0+}^{#1} + \frac{1}{2}$	1		$\Gamma_{2}^{#2} \uparrow^{\alpha\beta\chi}$	$\Gamma_{2^{-}}^{#1} \uparrow^{\alpha\beta\chi}$	$h_{2}^{#1} + \alpha \beta$	$\Gamma_{2+}^{#3} \dagger^{\alpha\beta}$	$\Gamma_{2+}^{#2} \dagger^{\alpha\beta}$	$\Gamma_{2+}^{#1} + \alpha \beta$				$\frac{7c_1)k^2}{2}$	2)	94 <i>c</i> 1) <i>k</i> 2)	$\frac{7c_1)k^2}{r^2}$	$\frac{(c_1)k^2}{2}$	NI	
	0	0	$\frac{ia_0k}{2\sqrt{2}}$	$-\frac{10c_1 k^2}{\sqrt{3}}$	$10\sqrt{\frac{2}{3}}c_1k^2$	0	$(-a_0 + 25c_1 k^2)$	Γ#1 0+		0	0	$\frac{i a_0 k}{4 \sqrt{2}}$	$\frac{5c_1k^2}{\sqrt{3}}$	-5	$\frac{1}{4}(a_0+11c_1k^2)$	$\Gamma^{\#1}_{2^+ \alpha \beta}$		0	$\frac{4i\sqrt{2}k(10a_0+(3a_0-394c_1)k^2)}{a_0^2(16+3k^2)^2}$	$-\frac{8i\sqrt{\frac{2}{3}}(a_0-65c_1k^2)}{a_0^2k(16+3k^2)}$	$\frac{32(13a_0 + (3a_0 - 197c_1)k^2)}{3a_0^2(16 + 3k^2)^2}$	$-\frac{8\sqrt{2}(22a_0+(3a_0+394c_1)k^2)}{3a_0^2(16+3k^2)^2}$	$-\frac{8\sqrt{2}(10a_0+(3a_0-394c_1)k^2)}{a_0^2(16+3k^2)^2}$	$-\frac{8}{\sqrt{3}(16a_0+3a_0k^2)}$	$\Delta_{0}^{\#4}$
	0	0	0	$\frac{a_0}{2\sqrt{2}}$	<u>a0</u> 2	0	0 1	Γ ₀ ^{#2}						¹ / ₆ (-3	-5	_			394 <i>c</i> 1) <i>k</i> ²) ²	[k ²)	$\frac{(c_1)k^2}{c_1^2}$	$94c_1)k^2$	$\frac{94c_1)k^2}{2}$	k ²)	
	0	<u>i a 0 k</u> 4	$-\frac{ia_0k}{4\sqrt{3}}$	$\frac{3a_0+46c_1 k^2}{6 \sqrt{2}}$	23 <i>c</i> 1 <i>k</i> ²	2 2	$10\sqrt{\frac{2}{3}}c_1k^2$	Γ ₀ #3		0	0	$\frac{i a_0 k}{4 \sqrt{3}}$	$\frac{c_1 k^2}{6 \sqrt{2}}$	$(-3a_0 + c_1k^2)$	$\sqrt{\frac{2}{3}} c_1 k^2$	Γ#2 2+αβ		0	$\frac{4 \sqrt{3} (a_0-65c_1)}{a_0^2 (16+3k^2)}$	$\frac{4(a_0-25c_1)^2}{a_0^2k^2}$	$\frac{8i\sqrt{\frac{2}{3}}(a_0-65c)}{a_0^2k(16+3k)}$		$-\frac{8i\sqrt{3}(a_0-65c_0)}{a_0^2k(16+3k_0)}$	$-\frac{2i\sqrt{2}}{a_0k}$	${\cal T}_{0^+}^{*1}$
				611									12						55 c1 +3 k ²	² ² ²	65 c:	<u> c1 k</u> 16+3	.65 c	× 2	+ 1