	$\Delta_0^{\#1}$	$\Delta_0^{\#2}$	$\Delta_0^{\#3}$	$\Delta_0^{\#4}$	${\mathcal T}_0^{\sharp 1}$	${\cal T}_0^{\#2}$	Δ#1
$\Delta_{0}^{#1}$ †	0	$\frac{4\sqrt{6}}{16a_0 + 3a_0 k^2}$	$-\frac{4\sqrt{\frac{2}{3}}}{16a_0+3a_0k^2}$	$-\frac{8}{\sqrt{3} (16 a_0 + 3 a_0 k^2)}$	$-\frac{2i\sqrt{2}}{a_0k}$	$-\frac{2i\sqrt{6}k}{16a_0+3a_0k^2}$	0
$\Delta_{0}^{\#2}$ †	$\frac{4\sqrt{6}}{16a_0 + 3a_0 k^2}$	$-\frac{144}{a_0 (16+3 k^2)^2}$	$\frac{16(19+3k^2)}{a_0(16+3k^2)^2}$	$-\frac{8\sqrt{2}(10+3k^2)}{a_0(16+3k^2)^2}$	$-\frac{8i\sqrt{3}}{16a_0k+3a_0k^3}$	$\frac{72ik}{a_0(16+3k^2)^2}$	0
$\Delta_{0}^{#3}$ †	$-\frac{4\sqrt{\frac{2}{3}}}{16a_0+3a_0k^2}$	$\frac{16(19+3k^2)}{a_0(16+3k^2)^2}$	$-\frac{16(35+6k^2)}{3a_0(16+3k^2)^2}$	$-\frac{8\sqrt{2}(22+3k^2)}{3a_0(16+3k^2)^2}$	$\frac{8i}{\sqrt{3} (16a_0k + 3a_0k^3)}$	$-\frac{8ik(19+3k^2)}{a_0(16+3k^2)^2}$	0
$\Delta_{0}^{#4}$ †	$-\frac{8}{\sqrt{3} (16 a_0 + 3 a_0 k^2)}$	$-\frac{8\sqrt{2}(10+3k^2)}{a_0(16+3k^2)^2}$	$-\frac{8\sqrt{2}(22+3k^2)}{3a_0(16+3k^2)^2}$	$\frac{32(13+3k^2)}{3a_0(16+3k^2)^2}$	$\frac{8i\sqrt{2}}{16a_0k+3a_0k^3}$	$\frac{4i\sqrt{2}k(10+3k^2)}{a_0(16+3k^2)^2}$	0
${\cal T}_{0}^{\#1}$ †	2 i √2 a ₀ k	$\frac{8i\sqrt{3}}{16a_0k+3a_0k^3}$	$-\frac{8i}{\sqrt{3} (16 a_0 k + 3 a_0 k^3)}$	$-\frac{8i\sqrt{\frac{2}{3}}}{16a_0k+3a_0k^3}$	$\frac{4}{a_0 k^2}$	$\frac{4\sqrt{3}}{16a_0 + 3a_0 k^2}$	0
${\cal T}_{0}^{\#2}\dagger$	$\frac{2 i \sqrt{6} k}{16 a_0 + 3 a_0 k^2}$	$-\frac{72ik}{a_0(16+3k^2)^2}$	$\frac{8ik(19+3k^2)}{a_0(16+3k^2)^2}$	$-\frac{4i\sqrt{2}k(10+3k^2)}{a_0(16+3k^2)^2}$	$\frac{4\sqrt{3}}{16a_0 + 3a_0 k^2}$	$-\frac{36k^2}{a_0(16+3k^2)^2}$	0
$\Delta_0^{\#1}$ †	0	0	0	0	0	0	$-\frac{2}{a_0}$

${\mathcal T}_{1^{\bar{-}}\alpha}^{\#1}$	0	0	0	$-\frac{2i\sqrt{2}k}{a_0(2+k^2)}$	$-\frac{ik(4+k^2)}{a_0(2+k^2)}$	$\frac{ik(6+5k^2)}{\sqrt{6} a_0 (2+k^2)}$	$-\frac{i\sqrt{\frac{5}{6}}k}{a_0(2+k^2)}$	$\frac{2ik(3+k^2)}{\sqrt{3}a_0(2+k^2)}$	$-\frac{i\sqrt{\frac{2}{3}}k}{a_0(2+k^2)}$	$\frac{2k^2}{a_0(2+k^2)^2}$
$\Delta_{1}^{\#6}{}_{\alpha}$	0	0	0	0	$-\frac{k^2}{\sqrt{6} \ a_0 \ (2+k^2)}$	$\frac{1}{-2 a_0 - \frac{8 a_0}{2 + 3 k^2}}$	$\frac{\sqrt{5}}{6a_0}$	$-\frac{\sqrt{2}(7+3k^2)}{3a_0(2+k^2)}$	$\frac{5}{3a_0}$	$i \sqrt{\frac{2}{3}} k$ $2 a_0 + a_0 k^2$
$\Delta_{1}^{\#5}{}_{\alpha}$	0	0	0	$\sqrt{\frac{2}{3}} k^2$ $a_0 (2+k^2)$	$\frac{k^2 (5+2k^2)}{\sqrt{3} a_0 (2+k^2)^2}$	$\frac{-2+k^2}{3\sqrt{2} a_0 (2+k^2)^2}$	$\sqrt{\frac{5}{2}}$ 6 $a_0 + 3 a_0 k^2$	$\frac{2(17+14k^2+3k^4)}{3a_0(2+k^2)^2}$	$-\frac{\sqrt{2} (7+3k^2)}{3 a_0 (2+k^2)}$	$-\frac{2ik(3+k^2)}{\sqrt{3}a_0(2+k^2)^2}$
$\Delta_{1}^{\#4}{}_{\alpha}$	0	0	0	0	$-\frac{\sqrt{\frac{5}{6}} k^2}{4 a_0 + 2 a_0 k^2}$	$\frac{\sqrt{5} (10+3 k^2)}{12 a_0 (2+k^2)}$	$\frac{1}{12a_0}$	$\sqrt{\frac{5}{2}}$ $6a_0+3a_0k^2$	$\frac{\sqrt{5}}{6a_0}$	$i\sqrt{\frac{5}{6}}k$ $2a_0+a_0k^2$
$\Delta_{1}^{\#3}{}_{\alpha}$	0	0	0	$-\frac{2k^2}{\sqrt{3}a_0(2+k^2)}$	$\frac{k^2 (-2+k^2)}{2 \sqrt{6} a_0 (2+k^2)^2}$	$-\frac{76+52k^2+3k^4}{12a_0(2+k^2)^2}$	$\frac{\sqrt{5} (10+3 k^2)}{12 a_0 (2+k^2)}$	$\frac{-2+k^2}{3\sqrt{2} \ a_0 \ (2+k^2)^2}$	$\frac{1}{-2 a_0 - \frac{8 a_0}{2 + 3 k^2}}$	$-\frac{ik(6+5k^2)}{\sqrt{6}a_0(2+k^2)^2}$
$\Delta_{1}^{\#2}{}_{\alpha}$	0	0	0	$\frac{\sqrt{2} (4+k^2)}{a_0 (2+k^2)}$	$\frac{(4+k^2)^2}{2 a_0 (2+k^2)^2}$	$\frac{k^2 (-2+k^2)}{2 \sqrt{6} a_0 (2+k^2)^2}$	$\sqrt{\frac{5}{6}} k^2 - \frac{4a_0 + 2a_0 k^2}{4}$	$\frac{k^2 (5+2k^2)}{\sqrt{3} a_0 (2+k^2)^2}$	$-\frac{k^2}{\sqrt{6}\;(2a_0+a_0k^2)}$	$\frac{i k (4+k^2)}{a_0 (2+k^2)^2}$
$\Delta_{1^{-}}^{\#1}{}_{\alpha}$	0	0	0	0	$\frac{\sqrt{2} (4+k^2)}{a_0 (2+k^2)}$	$-\frac{2k^2}{\sqrt{3}(2a_0+a_0k^2)}$	0	$\sqrt{\frac{2}{3}} k^2$ $2 a_0 + a_0 k^2$	0	$\frac{2i\sqrt{2}k}{2a_0 + a_0k^2}$
$\Delta_{1}^{\#3}{}_{+}\alpha\beta$	0	0	$\frac{4}{a_0}$	0	0	0	0	0	0	0
$\Delta_{1}^{\#1}{}_{\alpha\beta} \; \Delta_{1}^{\#2}{}_{\alpha\beta} \; \Delta_{1}^{\#3}{}_{\alpha\beta}$	$-\frac{2\sqrt{2}}{a_0}$	2 a ₀	0	0	0	0	0	0	0	0
$\Delta_1^{\#1}{}_+\alpha\beta$	0	$-\frac{2\sqrt{2}}{a_0}$	0	0	0	0	0	0	0	0
	$\Delta_{1}^{\#1} + ^{\alpha eta}$	$\Delta_{1}^{#2} + \alpha \beta$	$\Delta_1^{\#3} \dagger^{\alpha eta}$	$\Delta_{1}^{\#1} +^{\alpha}$	$\Delta_{1}^{\#2} +^{lpha}$	$\Delta_{1}^{\#3} +^{\alpha}$	$\Delta_{1}^{\#4} \dotplus^{\alpha}$	$\Delta_{1}^{\#5} +^{lpha}$	$\Delta_{1}^{\#6} \dagger^{\alpha}$	$\sigma_{1}^{*1} + \sigma$

$^{1}_{lphaeta\chi}~\Delta_{2}^{\#2}{}_{lphaeta\chi}$	0	0	0	0	0	$\frac{4}{a_0}$
$\Delta_{2^{-}}^{\#1}\alpha\beta\chi$	0	0	0	0	$\frac{4}{a_0}$	0
${\mathcal T}_{2}^{\#1}_{\alpha\beta}$	4 i √2 a 0 k	$-\frac{4i}{\sqrt{3}a_0k}$	$-\frac{4i\sqrt{\frac{2}{3}}}{a_0k}$	$-\frac{8}{a_0 k^2}$	0	0
$\Delta_{2^{+}\alpha\beta}^{\#2} \ \Delta_{2^{+}\alpha\beta}^{\#3}$	$\frac{4}{\sqrt{3}a_0}$	$-\frac{2\sqrt{2}}{3a_0}$	340	$\frac{4 i \sqrt{\frac{2}{3}}}{a_0 k}$	0	0
$\Delta_{2}^{\#2}{}_{\alpha\beta}$	$\frac{2\sqrt{\frac{2}{3}}}{a_0}$	$-\frac{8}{3a_0}$	$-\frac{2\sqrt{2}}{3a_0}$	$\frac{4i}{\sqrt{3}a_0k}$	0	0
$\Delta_{2}^{\#1}_{\alpha\beta}$	0	$2\sqrt{\frac{2}{3}}$ a_0	4 √3 a ₀	4 i √2 a 0 k	0	0
	$\Delta_{2}^{\#1} + \alpha \beta$	$\Delta_{2}^{\#2} + \alpha^{eta}$	$\Delta_{2}^{#3} + \alpha \beta$	$r_{2}^{*1} + \alpha \beta$	$\Delta_{2}^{#1} +^{\alpha \beta \chi}$	$\Delta_{2^{-}}^{#2} +^{\alpha \beta \chi}$

	_	$\Gamma_{1}^{\#1}_{\alpha\beta}$	$\Gamma_{1}^{\#2}_{\alpha\beta}$	$\Gamma_{1}^{#3} \alpha \beta$	$\Gamma_{1^{-}\alpha}^{\#1}$	$\Gamma_{1^{-}\alpha}^{#2}$	$\Gamma_{1-\alpha}^{\#3}$	$\Gamma_{1}^{\#4}{}_{\alpha}$	$\Gamma_{1}^{\#5}{}_{\alpha}$	$\Gamma_{1^{-}\alpha}^{\#6}$	$h_{1}^{\#1}\alpha$
$\Gamma_{1}^{\#1}$ †	.αβ	$-\frac{a_0}{4}$	$-\frac{a_0}{2\sqrt{2}}$	0	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	0	0	<u>a₀</u> 4	0	0	0	0	0	0	0
Γ ₁ .	\dagger^{α}	0	0	0	$-\frac{a_0}{4}$	$\frac{a_0}{2\sqrt{2}}$	0	0	0	0	$-\frac{i a_0 k}{4 \sqrt{2}}$
Γ ₁ ^{#2}	\dagger^{α}	0	0	0	$\frac{a_0}{2\sqrt{2}}$	0	0	0	0	0	0
Γ ₁ ^{#3}	\dagger^{α}	0	0	0	0	0	$-\frac{a_0}{3}$	$\frac{\sqrt{5} \ a_0}{6}$	$-\frac{a_0}{6\sqrt{2}}$	<u>-</u> <u>a_0</u> 6	$\frac{i a_0 k}{4 \sqrt{6}}$
Γ ₁ -4	\dagger^{α}	0	0	0	0	0	$\frac{\sqrt{5} \ a_0}{6}$	<u>a₀</u> 3	$-\frac{1}{6}\sqrt{\frac{5}{2}}a_0$	$-\frac{\sqrt{5} a_0}{6}$	$-\frac{1}{4}\bar{l}\sqrt{\frac{5}{6}}a_0k$
Γ ₁ ^{±5}	\dagger^{α}	0	0	0	0	0	$-\frac{a_0}{6\sqrt{2}}$	$-\frac{1}{6}\sqrt{\frac{5}{2}}a_0$	<u>a₀</u> 3	$\frac{a_0}{6\sqrt{2}}$	$\frac{i a_0 k}{4 \sqrt{3}}$
Γ ₁ -6	\dagger^{α}	0	0	0	0	0	$-\frac{a_0}{6}$	$-\frac{\sqrt{5} a_0}{6}$	$\frac{a_0}{6\sqrt{2}}$	5 a ₀ 12	$\frac{i a_0 k}{4 \sqrt{6}}$
h ₁ ^{#1}	\dagger^{α}	0	0	0	$\frac{i a_0 k}{4 \sqrt{2}}$	0	$-\frac{i a_0 k}{4 \sqrt{6}}$	$\frac{1}{4}i\sqrt{\frac{5}{6}}a_0k$	$-\frac{i a_0 k}{4 \sqrt{3}}$	$-\frac{i a_0 k}{4 \sqrt{6}}$	0

 $\lceil r_2^{+1} \alpha \beta \lceil r_2^{+2} \alpha \beta \rceil \lceil r_2^{+3} \beta \rceil \rceil + \lceil r_2^{+1} \alpha \beta \rceil \lceil r_2^{-1} \alpha \beta \gamma \rceil \rceil = \alpha \beta \chi$

0 - 40 - 2

0

 $\Gamma_2^{\#2} + \alpha \beta$

0

0

 $\Gamma_{2}^{#3} + \alpha \beta$

 $h_2^{\#1} \dagger^{\alpha\beta}$

	$\Gamma_0^{\#1}$	Γ ₀ ^{#2}	Γ ₀ ^{#3}	Γ ₀ ^{#4}	$h_{0}^{\#1}$	$h_{0}^{\#2}$	Γ ₀ -
$\Gamma_{0}^{\#1}$ †	$-\frac{a_0}{2}$	0	0	0	$-\frac{i a_0 k}{2 \sqrt{2}}$	0	0
$\Gamma_{0}^{\#2}$ †	0	0	<u>a₀</u> 2	$-\frac{a_0}{2\sqrt{2}}$	0	0	0
Γ ₀ ^{#3} †	0	<u>a₀</u> 2	0	$-\frac{a_0}{2\sqrt{2}}$	$\frac{i a_0 k}{4 \sqrt{3}}$	$-\frac{1}{4}ia_0k$	0
Γ ₀ ^{#4} †	0	$-\frac{a_0}{2\sqrt{2}}$	$-\frac{a_0}{2\sqrt{2}}$	<u>a₀</u> 2	$-\frac{i a_0 k}{4 \sqrt{6}}$	$\frac{i a_0 k}{4 \sqrt{2}}$	0
$h_{0}^{\#1}$ †	$\frac{i a_0 k}{2 \sqrt{2}}$	0	$-\frac{i a_0 k}{4 \sqrt{3}}$	$\frac{i a_0 k}{4 \sqrt{6}}$	0	0	0
$h_{0+}^{#2} \dagger$	0	0	<u>i a o k</u> 4	$-\frac{i a_0 k}{4 \sqrt{2}}$	0	0	0
Γ ₀ -1 †	0	0	0	0	0	0	$-\frac{a_0}{2}$

	0	0	0	0	$\frac{a_0}{4}$	$\Delta_{3}^{\#1}{}_{lphaeta\chi}$
	0	0	0	<u>4</u>	0	$\Delta_3^{\#1} + \alpha\beta\chi \qquad -\frac{2}{a_0}$
4 \(\sqrt{2}\)	$\frac{i a_0 k}{4 \sqrt{3}}$	$-\frac{ia_0k}{4\sqrt{6}}$	0	0	0	
		<u> </u>	<u>k</u>			

0

0

 $\Gamma_{2}^{#2} + \alpha \beta \chi$

0

0

 $\Gamma_{2}^{#1} +^{\alpha\beta\chi}$

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

? $\langle \mu \rangle$?	Quadratic pole	<u>.</u>
?	Pole residue:	$-\frac{1}{a_0} > 0$
?	Polarisations:	2

(No massive particles)

 $\frac{\text{Unitarity conditions}}{a_0 < 0}$