

[illegible]

$\Delta_1^{#1} + \alpha\beta$	$\Delta_1^{#2} + \alpha\beta$	$\Delta_1^{#3} + \alpha\beta$	$\Delta_1^{#1} + \alpha$	$\Delta_1^{#2} + \alpha$	$\Delta_1^{#3} + \alpha$	$\Delta_1^{#4} + \alpha$	$\Delta_1^{#5} + \alpha$	$\Delta_1^{#6} + \alpha$	$\mathcal{I}_1^{#1} + \alpha$
$\Delta_1^{#1} + \alpha\beta$	0	$-\frac{2\sqrt{2}}{a_0}$	0	0	0	0	0	0	0
$\Delta_1^{#2} + \alpha\beta$	$-\frac{2\sqrt{2}}{a_0}$	$\frac{2(a_0^2-14a_0c_1k^2-35c_1^2k^4)}{a_0^2-29a_0c_1k^2}$	0	0	0	0	0	0	0
$\Delta_1^{#3} + \alpha\beta$	0	$\frac{40\sqrt{2}c_1k^2}{a_0^2-29a_0c_1k^2}$	0	0	0	0	0	0	0
$\Delta_1^{#1} + \alpha$	0	0	0	$\frac{2\sqrt{2}}{a_0}$	0	0	0	0	0
$\Delta_1^{#2} + \alpha$	0	0	$\frac{2\sqrt{2}}{a_0}$	$\frac{2(a_0^2-30a_0c_1k^2+401c_1^2k^4)}{a_0^2-33a_0c_1k^2}$	$5\sqrt{\frac{2}{3}}c_1k^2\frac{(7a_0-236c_1k^2)}{a_0^2(a_0-33c_1k^2)}$	$5\sqrt{\frac{10}{3}}c_1k^2\frac{(a_0-82c_1k^2)}{a_0^2-33a_0c_1k^2}$	$\frac{10c_1k^2(-11a_0+118c_1k^2)}{\sqrt{3}a_0^2(a_0-33c_1k^2)}$	$50\sqrt{\frac{2}{3}}c_1k^2\frac{(a_0-28c_1k^2)}{6a_0^2-198a_0c_1k^2}$	0
$\Delta_1^{#3} + \alpha$	0	0	0	$5\sqrt{\frac{2}{3}}c_1k^2\frac{(7a_0-236c_1k^2)}{a_0^2(a_0-33c_1k^2)}$	$\frac{-19a_0^2-472a_0c_1k^2+5120c_1^2k^4}{12a_0^2(a_0-33c_1k^2)}$	$\frac{\sqrt{5}(5a_0-164c_1k^2)}{12a_0(a_0-33c_1k^2)}$	$-\frac{a_0^2-118a_0c_1k^2+2560c_1^2k^4}{6\sqrt{2}a_0^2(a_0-33c_1k^2)}$	$-\frac{a_0^2-28c_1k^2}{6a_0^2-198a_0c_1k^2}$	0
$\Delta_1^{#4} + \alpha$	0	0	0	$-\frac{5\sqrt{\frac{10}{3}}c_1k^2}{a_0^2-33a_0c_1k^2}$	$\frac{\sqrt{5}(5a_0-164c_1k^2)}{12a_0(a_0-33c_1k^2)}$	$\frac{1}{12a_0-396c_1k^2}$	$-\frac{\sqrt{\frac{5}{2}}(a_0-82c_1k^2)}{6a_0(a_0-33c_1k^2)}$	$-\frac{\sqrt{5}}{6(a_0-33c_1k^2)}$	0
$\Delta_1^{#5} + \alpha$	0	0	0	$\frac{10c_1k^2(-11a_0+118c_1k^2)}{\sqrt{3}a_0^2(a_0-33c_1k^2)}$	$-\frac{a_0^2-118a_0c_1k^2+2560c_1^2k^4}{6\sqrt{2}a_0^2(a_0-33c_1k^2)}$	$-\frac{\sqrt{\frac{5}{2}}(a_0-82c_1k^2)}{6a_0(a_0-33c_1k^2)}$	$\frac{17a_0^2-236a_0c_1k^2+1280c_1^2k^4}{6a_0^2(a_0-33c_1k^2)}$	$-\frac{7(a_0+2c_1k^2)}{3\sqrt{2}a_0(a_0-33c_1k^2)}$	0
$\Delta_1^{#6} + \alpha$	0	0	0	$\frac{50\sqrt{\frac{2}{3}}c_1k^2}{a_0^2-33a_0c_1k^2}$	$-\frac{a_0-28c_1k^2}{6a_0^2-198a_0c_1k^2}$	$-\frac{\sqrt{5}}{6(a_0-33c_1k^2)}$	$-\frac{7(a_0+2c_1k^2)}{3\sqrt{2}a_0(a_0-33c_1k^2)}$	$\frac{5}{3(a_0-33c_1k^2)}$	0
$\mathcal{I}_1^{#1} + \alpha$	0	0	0	0	0	0	0	0	0

$\Gamma_{\frac{1}{2}}^{\#1} + a\beta$	$\Gamma_{\frac{1}{2}}^{\#2} + a\beta$	$\Gamma_{\frac{1}{2}}^{\#3} + a\beta$	$\Gamma_{\frac{1}{2}}^{\#1} - \alpha$	$\Gamma_{\frac{1}{2}}^{\#2} - \alpha$	$\Gamma_{\frac{1}{2}}^{\#3} - \alpha$	$\Gamma_{\frac{1}{2}}^{\#4} - \alpha$	$\Gamma_{\frac{1}{2}}^{\#5} - \alpha$	$\Gamma_{\frac{1}{2}}^{\#6} - \alpha$	$\mathcal{H}_{\frac{1}{2}}^{\#1}$
$\frac{1}{4}(-a_0 - 15c_1k^2) - \frac{a_0}{2\sqrt{2}}$	$\frac{1}{4}(-a_0 - 15c_1k^2) - \frac{a_0}{2\sqrt{2}}$	$5c_1k^2$	0	0	0	0	0	0	0
$-\frac{a_0}{2\sqrt{2}}$	0	0	0	0	0	0	0	0	0
$5c_1k^2$	0	$\frac{1}{4}(a_0 - 29c_1k^2)$	0	0	0	0	0	0	0
$\Gamma_{\frac{1}{2}}^{\#1} + \alpha$	0	0	$\frac{1}{4}(-a_0 - 3c_1k^2)$	$\frac{a_0}{2\sqrt{2}}$	$\frac{5}{2}\sqrt{3}c_1k^2$	$-\frac{5}{2}\sqrt{\frac{2}{3}}c_1k^2$	$5\sqrt{\frac{2}{3}}c_1k^2$	$-\frac{5c_1k^2}{\sqrt{3}}$	0
$\Gamma_{\frac{1}{2}}^{\#2} + \alpha$	0	0	$\frac{a_0}{2\sqrt{2}}$	0	0	0	0	0	0
$\Gamma_{\frac{1}{2}}^{\#3} + \alpha$	0	0	$\frac{5}{2}\sqrt{3}c_1k^2$	0	$-\frac{a_0}{3}$	$\frac{1}{6}\sqrt{5}(a_0 - 8c_1k^2)$	$-\frac{a_0}{6\sqrt{2}}$	$\frac{1}{6}(-a_0 + 20c_1k^2)$	0
$\Gamma_{\frac{1}{2}}^{\#4} + \alpha$	0	0	$-\frac{5}{2}\sqrt{\frac{2}{3}}c_1k^2$	0	$\frac{1}{6}\sqrt{5}(a_0 - 8c_1k^2)$	$\frac{1}{3}(a_0 + 7c_1k^2)$	$-\frac{1}{6}\sqrt{\frac{5}{2}}(a_0 + 16c_1k^2)$	$-\frac{1}{6}\sqrt{5}(a_0 - 5c_1k^2)$	0
$\Gamma_{\frac{1}{2}}^{\#5} + \alpha$	0	0	$5\sqrt{\frac{2}{3}}c_1k^2$	0	$-\frac{a_0}{6\sqrt{2}}$	$-\frac{1}{6}\sqrt{\frac{2}{3}}(a_0 + 16c_1k^2)$	$\frac{a_0}{3}$	$\frac{a_0 + 40c_1k^2}{6\sqrt{2}}$	0
$\Gamma_{\frac{1}{2}}^{\#6} + \alpha$	0	0	$-\frac{5c_1k^2}{\sqrt{3}}$	0	$\frac{1}{6}(-a_0 + 20c_1k^2)$	$-\frac{1}{6}\sqrt{5}(a_0 - 5c_1k^2)$	$\frac{a_0 + 40c_1k^2}{6\sqrt{2}}$	$\frac{5}{12}(a_0 - 17c_1k^2)$	0
$\mathcal{H}_{\frac{1}{2}}^{\#1} + \alpha$	0	0	0	0	0	0	0	0	0

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Source constraints	#
SO(3) irreps	
$\mathcal{I}_{0^+}^{*2} = 0$	1
$\Delta_{0^+}^3 + 2\Delta_{0^+}^{*4} + 3\Delta_{0^+}^{*2} = 0$	1
$\mathcal{I}_1^{*1} = 0$	3
$2\Delta_1^{*6} + \Delta_1^{*4} + 2\Delta_1^{*5} + \Delta_1^{*3} = 0$	3
Total #:	8

	$\Delta_0^{\#1}$	$\Delta_0^{\#2}$	$\Delta_0^{\#3}$	$\Delta_0^{\#4}$	$\mathcal{T}_0^{\#1}$	$\mathcal{T}_0^{\#2}$	$\Delta_0^{\#1}$
$\Delta_0^{\#1} \uparrow$	$-\frac{2(a_0+25c_1k^2)}{a_0^2}$	$\frac{10\sqrt{6}c_1k^2}{a_0^2}$	$-\frac{10\sqrt{\frac{2}{3}}c_1k^2}{a_0^2}$	$-\frac{20c_1k^2}{\sqrt{3}a_0^2}$	$-\frac{50i\sqrt{2}c_1k}{a_0^2}$	0	0
$\Delta_0^{\#2} \uparrow$	$\frac{10\sqrt{6}c_1k^2}{a_0^2}$	$-\frac{3(a_0+23c_1k^2)}{4a_0^2}$	$\frac{5a_0+23c_1k^2}{4a_0^2}$	$-\frac{a_0-23c_1k^2}{2\sqrt{2}a_0^2}$	$\frac{20i\sqrt{3}c_1k}{a_0^2}$	0	0
$\Delta_0^{\#3} \uparrow$	$-\frac{10\sqrt{\frac{2}{3}}c_1k^2}{a_0^2}$	$\frac{5a_0+23c_1k^2}{4a_0^2}$	$-\frac{9a_0+23c_1k^2}{12a_0^2}$	$-\frac{3a_0+23c_1k^2}{6\sqrt{2}a_0^2}$	$-\frac{20ic_1k}{\sqrt{3}a_0^2}$	0	0
$\Delta_0^{\#4} \uparrow$	$-\frac{20c_1k^2}{\sqrt{3}a_0^2}$	$-\frac{a_0-23c_1k^2}{2\sqrt{2}a_0^2}$	$-\frac{3a_0+23c_1k^2}{6\sqrt{2}a_0^2}$	$\frac{3a_0-23c_1k^2}{6a_0^2}$	$-\frac{20i\sqrt{\frac{2}{3}}c_1k}{a_0^2}$	0	0
$\mathcal{T}_0^{\#1} \uparrow$	$\frac{50i\sqrt{2}c_1k}{a_0^2}$	$-\frac{20i\sqrt{3}c_1k}{a_0^2}$	$\frac{20ic_1k}{\sqrt{3}a_0^2}$	$\frac{20i\sqrt{\frac{2}{3}}c_1k}{a_0^2}$	$\frac{4(a_0-25c_1k^2)}{a_0^2k^2}$	0	0
$\mathcal{T}_0^{\#2} \uparrow$	0	0	0	0	0	0	0
$\Delta_0^{\#1} \uparrow$	0	0	0	0	0	0	$-\frac{2}{a_0c_1k^2}$

	$\Gamma_{0+}^{\#1}$	$\Gamma_{0+}^{\#2}$	$\Gamma_{0+}^{\#3}$	$\Gamma_{0+}^{\#4}$	$h_{0+}^{\#1}$	$h_{0+}^{\#2}$	$\Gamma_{0+}^{\#1}$
$\Gamma_{0+}^{\#1}$	$\frac{1}{2} (-a_0 + 25 c_1 k^2)$	0	$10 \sqrt{\frac{2}{3}} c_1 k^2$	$-\frac{10 c_1 k^2}{\sqrt{3}}$	$-\frac{25 i c_1 k^3}{2 \sqrt{2}}$	0	0
$\Gamma_{0+}^{\#2}$	0	0	$\frac{a_0}{2}$	$-\frac{a_0}{2 \sqrt{2}}$	0	0	0
$\Gamma_{0+}^{\#3}$	$10 \sqrt{\frac{2}{3}} c_1 k^2$	$\frac{a_0}{2}$	$\frac{23 c_1 k^2}{3}$	$-\frac{3 a_0 + 46 c_1 k^2}{6 \sqrt{2}}$	$-\frac{10 i c_1 k^3}{\sqrt{3}}$	0	0
$\Gamma_{0+}^{\#4}$	$-\frac{10 c_1 k^2}{\sqrt{3}}$	$-\frac{a_0}{2 \sqrt{2}}$	$-\frac{3 a_0 + 46 c_1 k^2}{6 \sqrt{2}}$	$\frac{1}{6} (3 a_0 + 23 c_1 k^2)$	$5 i \sqrt{\frac{2}{3}} c_1 k^3$	0	0
$h_{0+}^{\#1}$	$\frac{25 i c_1 k^3}{2 \sqrt{2}}$	0	$\frac{10 i c_1 k^3}{\sqrt{3}}$	$-5 i \sqrt{\frac{2}{3}} c_1 k^3$	$\frac{1}{4} k^2 (a_0 + 25 c_1 k^2)$	0	0
$h_{0+}^{\#2}$	0	0	0	0	0	0	0
$\Gamma_{0+}^{\#1}$	0	0	0	0	0	0	$\frac{1}{2} (-a_0 + c_1 k^2)$

$\Gamma^{\#1}_{\frac{1}{2}+a\beta}$	$\Gamma^{\#2}_{\frac{1}{2}+a\beta}$	$\Gamma^{\#3}_{\frac{1}{2}+a\beta}$	$h^{\#1}_{\frac{1}{2}+a\beta}$	$\Gamma^{\#1}_{\frac{1}{2}-a\beta}$	$\Gamma^{\#2}_{\frac{1}{2}-a\beta}$
$\frac{1}{4}(a_0 + 11c_1k^2)$	$-5\sqrt{\frac{2}{3}}c_1k^2$	$\frac{5c_1k^2}{\sqrt{3}}$	$-\frac{11ic_1k^3}{4\sqrt{2}}$	0	0
$-5\sqrt{\frac{2}{3}}c_1k^2$	$\frac{1}{6}(-3a_0 + c_1k^2)$	$-\frac{c_1k^2}{6\sqrt{2}}$	$\frac{5ic_1k^3}{\sqrt{3}}$	0	0
$\frac{5c_1k^2}{\sqrt{3}}$	$-\frac{c_1k^2}{6\sqrt{2}}$	$\frac{1}{12}(3a_0 + c_1k^2)$	$-\frac{5ic_1k^3}{\sqrt{6}}$	0	0
$\frac{11ic_1k^3}{4\sqrt{2}}$	$-\frac{5ic_1k^3}{\sqrt{3}}$	$\frac{5ic_1k^3}{\sqrt{6}}$	$-\frac{1}{8}k^2(a_0 - 11c_1k^2)$	0	0
0	0	0	0	$\frac{1}{4}(a_0 - c_1k^2)$	0
0	0	0	0	0	$\frac{1}{4}(a_0 - 5c_1k^2)$

Massive particle	
Pole residue:	$-\frac{4164}{24\,389\,t_1} > 0$
Polarisations:	3
Square mass:	$\frac{40}{29t_1} > 0$
Spin:	1
Parity:	Even

Massive particle	
Pole residue:	$\frac{4907}{35\,937\,t_1} > 0$
Polarisations:	3
Square mass:	$\frac{40}{33t_1} > 0$
Spin:	1
Parity:	Odd

Massive particle	
Pole residue:	$-\frac{2}{7t_1} > 0$
Polarisations:	7
Square mass:	$\frac{40}{7t_1} > 0$
Spin:	3
Parity:	Odd

Pole residue:	$\frac{2}{7c_1} > 0$
Polarisations:	7
Square mass:	$\frac{a_0}{7c_1} > 0$
Spin:	3
Parity:	Odd

Massive particle	
Pole residue:	$\frac{4}{5\epsilon_1} > 0$
Polarisations:	5
Square mass:	$\frac{a_0}{5\epsilon_1} > 0$
Spin:	2
Parity:	Odd

Massive particle

Pole residue:	$-\frac{2}{c_1} > 0$
Polarisations:	1
Square mass:	$\frac{c_0}{c_1} > 0$
Spin:	0
Parity:	Odd


Massive particle

Pole residue:	$\frac{4}{\epsilon_1} > 0$
Polarisations:	5
Square mass:	$\frac{a_0}{\epsilon_1} > 0$
Spin:	2
Parity:	Odd

Quadratic pole

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

Unitarity conditions



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

Unitarity conditions

Unitarity conditions
(Unitarity is demonstrably impossible)