

| | $\Delta_{1^+}^{\#1} a\beta$ | $\Delta_{1^+}^{\#2} a\beta$ | $\Delta_{1^+}^{\#3} a\beta$ | $\Delta_{1^+}^{\#1} \alpha$ | $\Delta_{1^+}^{\#2} \alpha$ | $\Delta_{1^+}^{\#3} \alpha$ | $\Delta_{1^+}^{\#4} \alpha$ | $\Delta_{1^+}^{\#5} \alpha$ | $\Delta_{1^+}^{\#6} \alpha$ | $\mathcal{T}_{1^+}^{\#1} \alpha$ |
|------------------------------------|-----------------------------|---|--|---|---|---|---|---|--|---|
| $\Delta_{1^+}^{\#1} + a\beta$ | 0 | $-\frac{2\sqrt{2}}{a_0}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $\Delta_{1^+}^{\#2} + a\beta$ | $-\frac{2\sqrt{2}}{a_0}$ | $\frac{2(a_0^2-14a_0c_1k^2-35c_1^2k^4)}{a_0^2(a_0-29c_1k^2)}$ | $\frac{40\sqrt{2}c_1k^2}{a_0^2-29a_0c_1k^2}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $\Delta_{1^+}^{\#3} + a\beta$ | 0 | $\frac{40\sqrt{2}c_1k^2}{a_0^2-29a_0c_1k^2}$ | $\frac{4}{a_0-29c_1k^2}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $\Delta_{1^+}^{\#1} + \alpha$ | 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 | $-\frac{2i\sqrt{2}k}{a_0(2+k^2)}$ |
| $\Delta_{1^+}^{\#2} + \alpha$ | 0 | 0 | 0 | $\frac{\sqrt{2}(4+k^2)}{a_0(2+k^2)}$ | $\frac{a_0^2(4+k^2)^2-30a_0c_1k^2(4+k^2)(4+3k^2)+c_1^2k^4(6416+7928k^2+1901k^4)}{2a_0^2(2+k^2)^2(a_0-33c_1k^2)}$ | $\frac{k^2(a_0^2(-2+k^2)+a_0c_1(560+302k^2+71k^4))-2c_1^2k^2(9440+1901k^2(4+k^2)))}{2\sqrt{6}a_0^2(2+k^2)^2(a_0-33c_1k^2)}$ | $-\frac{\sqrt{\frac{5}{6}}k^2(a_0+c_1(40-31k^2))}{2a_0(2+k^2)(a_0-33c_1k^2)}$ | $\frac{k^2(2a_0^2(5+2k^2)-a_0c_1(880+778k^2+199k^4)+c_1^2k^2(9440+1901k^2(4+k^2)))}{2\sqrt{3}a_0^2(2+k^2)^2(a_0-33c_1k^2)}$ | $\frac{k^2(-a_0+c_1(200+43k^2))}{\sqrt{6}a_0(2+k^2)(a_0-33c_1k^2)}$ | $-\frac{ik(-30a_0c_1k^4+a_0^2(4+k^2)+27c_1^2k^4(-28+3k^2))}{a_0^2(2+k^2)^2(a_0-33c_1k^2)}$ |
| $\Delta_{1^+}^{\#3} + \alpha$ | 0 | 0 | 0 | $-\frac{2k^2}{\sqrt{3}(2a_0+a_0k^2)}$ | $\frac{k^2(a_0^2(-2+k^2)+a_0c_1(880+302k^2+71k^4))-2c_1^2k^2(9440+1901k^2(4+k^2)))}{2\sqrt{6}a_0^2(2+k^2)^2(a_0-33c_1k^2)}$ | $\frac{-a_0^2(76+52k^2+3k^4)+4a_0c_1k^2(472+214k^2+19k^4)+4c_1^2k^4(5120+7280k^2+1901k^4)}{12a_0^2(2+k^2)(a_0-33c_1k^2)}$ | $\frac{\sqrt{5}(10a_0+3a_0-328c_1)k^2-62c_1k^4}{12a_0(2+k^2)(a_0-33c_1k^2)}$ | $\frac{2a_0^2(-2+k^2)+a_0c_1k^2(472+934k^2+289k^4)-2c_1^2k^4(5120+7280k^2+1901k^4)}{6\sqrt{2}a_0^2(2+k^2)^2(a_0-33c_1k^2)}$ | $\frac{-2a_0+(3a_0-56c_1)k^2+86c_1k^4}{6a_0(2+k^2)(a_0-33c_1k^2)}$ | $\frac{ik(54c_1^2k^4(40+3k^2)+a_0^2(6+5k^2)-3a_0c_1k^2(86+23k^2))}{\sqrt{6}a_0^2(2+k^2)^2(a_0-33c_1k^2)}$ |
| $\Delta_{1^+}^{\#4} + \alpha$ | 0 | 0 | 0 | 0 | $-\frac{\sqrt{\frac{5}{6}}k^2(a_0+c_1(140-31k^2))}{2a_0(2+k^2)(a_0-33c_1k^2)}$ | $\frac{\sqrt{5}(10a_0+k^2(3a_0-2c_1(164+31k^2))))}{12a_0(2+k^2)(a_0-33c_1k^2)}$ | $\frac{1}{12a_0-396c_1k^2}$ | $\frac{\sqrt{\frac{5}{2}}(-2a_0+c_1k^2(164+31k^2))}{6a_0(2+k^2)(a_0-33c_1k^2)}$ | $-\frac{\sqrt{5}}{6(a_0-33c_1k^2)}$ | $-\frac{i\sqrt{\frac{5}{6}}k(a_0-51c_1k^2)}{a_0(2+k^2)(a_0-33c_1k^2)}$ |
| $\Delta_{1^+}^{\#5} + \alpha$ | 0 | 0 | 0 | $\frac{\sqrt{\frac{2}{3}}k^2}{2a_0+a_0k^2}$ | $\frac{k^2(2a_0^2(5+2k^2)-a_0c_1(880+778k^2+199k^4)+c_1^2k^2(9440+1901k^2(4+k^2)))}{2\sqrt{3}a_0^2(2+k^2)^2(a_0-33c_1k^2)}$ | $\frac{2a_0^2(-2+k^2)+a_0c_1k^2(472+934k^2+289k^4)-2c_1^2k^4(5120+7280k^2+1901k^4)}{6\sqrt{2}a_0^2(2+k^2)^2(a_0-33c_1k^2)}$ | $\frac{\sqrt{\frac{5}{2}}(-2a_0+c_1k^2(164+31k^2))}{6a_0(2+k^2)(a_0-33c_1k^2)}$ | $\frac{4a_0^2(17+14k^2+3k^4)-4a_0c_1k^2(236+287k^2+77k^4)+c_1^2k^4(5120+7280k^2+1901k^4)}{6a_0^2(2+k^2)^2(a_0-33c_1k^2)}$ | $\frac{-c_1k^2(28-43k^2)+2a_0(7+3k^2)}{3\sqrt{2}a_0(2+k^2)(a_0-33c_1k^2)}$ | $\frac{ik(2a_0^2(3+k^2)-27c_1^2k^4(40+3k^2)+3a_0c_1k^2(34+7k^2))}{\sqrt{3}a_0^2(2+k^2)^2(a_0-33c_1k^2)}$ |
| $\Delta_{1^+}^{\#6} + \alpha$ | 0 | 0 | 0 | 0 | $\frac{k^2(-a_0+c_1(200+43k^2))}{\sqrt{6}a_0(2+k^2)(a_0-33c_1k^2)}$ | $-\frac{2a_0+(3a_0-56c_1)k^2+86c_1k^4}{6a_0(2+k^2)(a_0-33c_1k^2)}$ | $-\frac{\sqrt{5}}{6(a_0-33c_1k^2)}$ | $-\frac{c_1k^2(28-43k^2)+2a_0(7+3k^2)}{3\sqrt{2}a_0(2+k^2)(a_0-33c_1k^2)}$ | $\frac{5}{3(a_0-33c_1k^2)}$ | $-\frac{i\sqrt{\frac{2}{3}}k(a_0+57c_1k^2)}{a_0(2+k^2)(a_0-33c_1k^2)}$ |
| $\mathcal{T}_{1^+}^{\#1} + \alpha$ | 0 | 0 | 0 | $\frac{2i\sqrt{2}k}{2a_0+a_0k^2}$ | $\frac{i(-30a_0c_1k^5+a_0^2k(4+k^2)+27c_1^2k^5(-28+3k^2))}{a_0^2(2+k^2)^2(a_0-33c_1k^2)}$ | $-\frac{i(54c_1^2k^5(40+3k^2)+a_0^2k(6+5k^2)-3a_0c_1k^3(86+23k^2))}{\sqrt{6}a_0^2(2+k^2)^2(a_0-33c_1k^2)}$ | $\frac{i\sqrt{\frac{5}{6}}k(a_0-51c_1k^2)}{a_0(2+k^2)(a_0-33c_1k^2)}$ | $-\frac{i(2a_0^2k(3+k^2)-27c_1^2k^5(40+3k^2)+3a_0c_1k^3(34+7k^2))}{\sqrt{3}a_0^2(2+k^2)^2(a_0-33c_1k^2)}$ | $\frac{i\sqrt{\frac{2}{3}}k(a_0+57c_1k^2)}{a_0(2+k^2)(a_0-33c_1k^2)}$ | $\frac{2k^2(a_0^2+30a_0c_1k^2-459c_1^2k^4)}{a_0^2(2+k^2)^2(a_0-33c_1k^2)}$ |

| | $\Gamma_{1^+}^{\#1} a\beta$ | $\Gamma_{1^+}^{\#2} a\beta$ | $\Gamma_{1^+}^{\#3} a\beta$ | $\Gamma_{1^+}^{\#1} \alpha$ | $\Gamma_{1^+}^{\#2} \alpha$ | $\Gamma_{1^+}^{\#3} \alpha$ | $\Gamma_{1^+}^{\#4} \alpha$ | $\Gamma_{1^+}^{\#5} \alpha$ | $\Gamma_{1^+}^{\#6} \alpha$ | $h_{1^+}^{\#1} \alpha$ |
|-------------------------------|------------------------------|-----------------------------|-----------------------------|--|-----------------------------|------------------------------------|--|--|-------------------------------------|---------------------------------------|
| $\Gamma_{1^+}^{\#1} + a\beta$ | $\frac{1}{4}(-a_0-15c_1k^2)$ | $-\frac{a_0}{2\sqrt{2}}$ | $5c_1k^2$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $\Gamma_{1^+}^{\#2} + a\beta$ | $-\frac{a_0}{2\sqrt{2}}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $\Gamma_{1^+}^{\#3} + a\beta$ | $5c_1k^2$ | 0 | $\frac{1}{4}(a_0-29c_1k^2)$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $\Gamma_{1^+}^{\#1} + \alpha$ | 0 | 0 | 0 | $\frac{1}{4}(-a_0-3c_1k^2)$ | $\frac{a_0}{2\sqrt{2}}$ | $\frac{5}{2}\sqrt{3}c_1k^2$ | $-\frac{5}{2}\sqrt{\frac{3}{3}}c_1k^2$ | $5\sqrt{\frac{2}{2}}c_1k^2$ | $-\frac{5c_1k^2}{\sqrt{3}}$ | $-\frac{ia_0k}{4\sqrt{2}}$ |
| $\Gamma_{1^+}^{\#2} + \alpha$ | 0 | 0 | 0 | $\frac{a_0}{2\sqrt{2}}$ | 0 | 0 | 0 | 0 | 0 | 0 |
| $\Gamma_{1^+}^{\#3} + \alpha$ | 0 | 0 | 0 | $\frac{5}{2}\sqrt{3}c_1k^2$ | 0 | $-\frac{a_0}{3}$ | $\frac{1}{6}\sqrt{5}(a_0-8c_1k^2)$ | $-\frac{a_0}{6\sqrt{2}}$ | $\frac{1}{6}(-a_0+20c_1k^2)$ | $\frac{ia_0k}{4\sqrt{6}}$ |
| $\Gamma_{1^+}^{\#4} + \alpha$ | 0 | 0 | 0 | $-\frac{5}{2}\sqrt{\frac{3}{3}}c_1k^2$ | 0 | $\frac{1}{6}\sqrt{5}(a_0-8c_1k^2)$ | $\frac{1}{3}(a_0+7c_1k^2)$ | $-\frac{1}{6}\sqrt{\frac{5}{2}}(a_0+16c_1k^2)$ | $-\frac{1}{6}\sqrt{5}(a_0-5c_1k^2)$ | $-\frac{1}{4}i\sqrt{\frac{6}{6}}a_0k$ |
| $\Gamma_{1^+}^{\#5} + \alpha$ | 0 | 0 | 0 | $5\sqrt{\frac{2}{2}}c_1k^2$ | 0 | $-\frac{a_0}{6\sqrt{2}}$ | $-\frac{1}{6}\sqrt{\frac{5}{2}}(a_0+16c_1k^2)$ | $\frac{a_0}{3}$ | $\frac{a_0+40c_1k^2}{6\sqrt{2}}$ | $\frac{ia_0k}{4\sqrt{3}}$ |
| $\Gamma_{1^+}^{\#6} + \alpha$ | 0 | 0 | 0 | $-\frac{5c_1k^2}{\sqrt{3}}$ | 0 | $\frac{1}{6}(-a_0+20c_1k^2)$ | $-\frac{1}{6}\sqrt{5}(a_0-5c_1k^2)$ | $\frac{a_0+40c_1k^2}{6\sqrt{2}}$ | $\frac{5}{12}(a_0-17c_1k^2)$ | $\frac{ia_0k}{4\sqrt{6}}$ |
| $h_{1^+}^{\#1} + \alpha$ | 0 | 0 | 0 | $\frac{ia_0k}{4\sqrt{2}}$ | 0 | $-\frac{ia_0k}{4\sqrt{6}}$ | $\frac{1}{4}i\sqrt{\frac{5}{6}}a_0k$ | $-\frac{ia_0k}{4\sqrt{3}}$ | $-\frac{ia_0k}{4\sqrt{6}}$ | 0 |

| | $\Delta_{0^+}^{\#1}$ | $\Delta_{0^+}^{\#2}$ | $\Delta_{0^+}^{\#3}$ | $\Delta_{0^+}^{\#4}$ | $\mathcal{T}_{0^+}^{\#1}$ | $\mathcal{T}_{0^+}^{\#2}$ | $\Delta_{0^+}^{\#1}$ |
|-----------------------------|--|--|--|--|--|--|---|
| $\Delta_{0^+}^{\#1} +$ | 0 | $\frac{4\sqrt{6}}{16a_0+3a_0k^2}$ | $-\frac{4\sqrt{\frac{2}{3}}}{16a_0+3a_0k^2}$ | $-\frac{4\sqrt{\frac{2}{3}}}{16a_0+3a_0k^2}$ | $\frac{2i\sqrt{2}}{a_0k}$ | $\frac{2i\sqrt{2}}{a_0k}$ | $\frac{4\sqrt{6}}{16a_0+3a_0k^2}$ |
| $\Delta_{0^+}^{\#2} +$ | $\frac{4\sqrt{6}}{16a_0+3a_0k^2}$ | $-\frac{4\sqrt{\frac{2}{3}}}{a_0^2(16+3k^2)^2}$ | $-\frac{4\sqrt{\frac{2}{3}}}{a_0^2(16+3k^2)^2}$ | $-\frac{4\sqrt{\frac{2}{3}}}{a_0^2(16+3k^2)^2}$ | $\frac{8i\sqrt{3}(a_0-55c_1k^2)}{a_0^2k(16+3k^2)}$ | $\frac{8i\sqrt{3}(a_0-55c_1k^2)}{a_0^2k(16+3k^2)}$ | $-\frac{4\sqrt{\frac{2}{3}}}{a_0^2(16+3k^2)^2}$ |
| $\Delta_{0^+}^{\#3} +$ | $\frac{4\sqrt{\frac{2}{3}}}{16a_0+3a_0k^2}$ | $-\frac{4\sqrt{\frac{2}{3}}}{a_0^2(16+3k^2)^2}$ | $-\frac{4\sqrt{\frac{2}{3}}}{a_0^2(16+3k^2)^2}$ | $-\frac{4\sqrt{\frac{2}{3}}}{a_0^2(16+3k^2)^2}$ | $-\frac{16i(19a_0+13a_0+197c_1k^2)}{a_0^2(16+3k^2)^2}$ | $-\frac{16i(19a_0+13a_0+197c_1k^2)}{a_0^2(16+3k^2)^2}$ | $-\frac{4\sqrt{\frac{2}{3}}}{a_0^2(16+3k^2)^2}$ |
| $\Delta_{0^+}^{\#4} +$ | $-\frac{4\sqrt{\frac{2}{3}}}{16a_0+3a_0k^2}$ | $-\frac{4\sqrt{\frac{2}{3}}}{a_0^2(16+3k^2)^2}$ | $-\frac{4\sqrt{\frac{2}{3}}}{a_0^2(16+3k^2)^2}$ | $-\frac{4\sqrt{\frac{2}{3}}}{a_0^2(16+3k^2)^2}$ | $-\frac{16i(19a_0+13a_0+197c_1k^2)}{a_0^2(16+3k^2)^2}$ | $-\frac{16i(19a_0+13a_0+197c_1k^2)}{a_0^2(16+3k^2)^2}$ | $-\frac{4\sqrt{\frac{2}{3}}}{a_0^2(16+3k^2)^2}$ |
| $\mathcal{T}_{0^+}^{\#1} +$ | $\frac{2i\sqrt{2}}{a_0k}$ | $\frac{8i\sqrt{3}(a_0-55c_1k^2)}{a_0^2k(16+3k^2)}$ | $\frac{8i\sqrt{3}(a_0-55c_1k^2)}{a_0^2k(16+3k^2)}$ | $\frac{8i\sqrt{3}(a_0-55c_1k^2)}{a_0^2k(16+3k^2)}$ | $-\frac{16i(19a_0+13a_0+197c_1k^2)}{a_0^2(16+3k^2)^2}$ | $-\frac{16i(19a_0+13a_0+197c_1k^2)}{a_0^2(16+3k^2)^2}$ | $\frac{2i\sqrt{2}}{a_0k}$ |
| $\mathcal{T}_{0^+}^{\#2} +$ | $\frac{2i\sqrt{2}}{a_0k}$ | $\frac{8i\sqrt{3}(a_0-55c_1k^2)}{a_0^2k(16+3k^2)}$ | $\frac{8i\sqrt{3}(a_0-55c_1k^2)}{a_0^2k(16+3k^2)}$ | $\frac{8i\sqrt{3}(a_0-55c_1k^2)}{a_0^2k(16+3k^2)}$ | $-\frac{16i(19a_0+13a_0+197c_1k^2)}{a_0^2(16+3k^2)^2}$ | $-\frac{16i(19a_0+13a_0+197c_1k^2)}{a_0^2(16+3k^2)^2}$ | $\frac{2i\sqrt{2}}{a_0k}$ |
| $\Delta_{0^+}^{\#1}$ | $-\frac{2}{a_0c_1k^2}$ | 0 | 0 | 0 | 0 | 0 | 0 |

| | $\Delta_{2^+}^{\#1} a\beta$ | $\Delta_{2^+}^{\#2} a\beta$ | $\Delta_{2^+}^{\#3} a\beta$ | $\mathcal{T}_{2^+}^{\#1} a\beta$ | $\Delta_{2^+}^{\#1} a\beta\chi$ | $\Delta_{2^+}^{\#2} a\beta\chi$ |
|------------------------------------|-----------------------------------|---|---|--|---------------------------------|---------------------------------|
| $\Delta_{2^+}^{\#1} + a\beta$ | 0 | $\frac{2\sqrt{\frac{2}{3}}}{a_0}$ | $\frac{4}{\sqrt{3}a_0}$ | $\frac{4i\sqrt{2}}{a_0k}$ | 0 | 0 |
| $\Delta_{2^+}^{\#2} + a\beta$ | $\frac{2\sqrt{\frac{2}{3}}}{a_0}$ | $-\frac{8(a_0+13c_1k^2)}{3a_0^2}$ | $-\frac{2\sqrt{2}(a_0+52c_1k^2)}{3a_0^2}$ | $-\frac{4i(a_0+31c_1k^2)}{\sqrt{3}a_0^2k}$ | 0 | 0 |
| $\Delta_{2^+}^{\#3} + a\beta$ | $\frac{4}{\sqrt{3}a_0}$ | $-\frac{2\sqrt{2}(a_0+52c_1k^2)}{3a_0^2}$ | $\frac{8(a_0-26c_1k^2)}{3a_0^2}$ | $-\frac{4i\sqrt{\frac{2}{3}}(a_0+31c_1k^2)}{a_0^2k}$ | 0 | 0 |
| $\mathcal{T}_{2^+}^{\#1} + a\beta$ | $\frac{4i\sqrt{2}}{a_0k}$ | $\frac{4i(a_0+31c_1k^2)}{\sqrt{3}a_0^2k}$ | $\frac{4i\sqrt{\frac{2}{3}}(a_0+31c_1k^2)}{a_0^2k}$ | $-\frac{8(a_0+11c_1k^2)}{a_0^2k^2}$ | 0 | 0 |
| $\Delta_{2^+}^{\#1} + a\beta\chi$ | 0 | 0 | 0 | 0 | $\frac{4}{a_0c_1k^2}$ | 0 |
| $\Delta_{2^+}^{\#2} + a\beta\chi$ | 0 | 0 | 0 | 0 | 0 | $\frac{4}{a_0-5c_1k^2}$ |

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

$\Gamma_{3^+}^{\#1} + a\beta\chi$

$\frac{\Gamma_{3^+}^{\#1}}{2}(-a_0-7c_1k^2)$

$\Delta_{3^+}^{\#1} + a\beta\chi$

$-\frac{\Delta_{3^+}^{\#1}}{a_0+7c_1k^2}$

| Lagrangian density | |
|---|--|
| $-\frac{1}{2}a_0\Gamma^{\alpha\beta\chi}\Gamma_{\beta\chi\alpha}+\frac{1}{2}a_0\Gamma^{\alpha}\beta\Gamma^{\chi}_{\beta\chi}-\frac{1}{4}a_0h^{\chi}_{\chi}\partial_{\beta}\Gamma^{\alpha}\beta+\frac{1}{4}a_0h^{\chi}_{\chi}\partial_{\beta}\Gamma^{\alpha\beta\chi}-\frac{1}{2}a_0h_{\alpha\chi}\partial_{\beta}\Gamma^{\alpha\beta\chi}+\frac{11}{2}c_1\partial^{\alpha}\Gamma^{\chi\delta}_{\delta}\partial_{\beta}\Gamma^{\chi\alpha}_{\alpha}\beta+\frac{1}{2}c_1\partial^{\alpha}\Gamma^{\chi\alpha}_{\alpha}\beta\partial_{\beta}\Gamma^{\chi\delta}_{\delta}-19c_1\partial^{\alpha}\Gamma^{\chi\delta}_{\chi}\partial_{\beta}\Gamma^{\alpha}\beta+\frac{1}{2}a_0h_{\beta\chi}\partial^{\alpha}\Gamma^{\alpha}\beta-\frac{1}{2}c_1\partial_{\beta}\Gamma^{\chi\delta}_{\delta}\partial^{\alpha}\Gamma^{\alpha}\beta-\frac{1}{2}c_1\partial_{\beta}\delta^{\alpha}\chi\partial^{\alpha}\Gamma^{\alpha}\beta+\frac{1}{2}c_1\partial_{\chi}\Gamma^{\delta}_{\beta}\delta^{\alpha}\Gamma^{\alpha}\beta-\frac{1}{2}c_1\partial_{\chi}\Gamma^{\delta}_{\beta\delta}\partial^{\alpha}\Gamma^{\alpha}\beta-\frac{1}{2}c_1\partial_{\chi}\Gamma^{\delta}_{\delta\beta}\partial^{\alpha}\Gamma^{\alpha}\beta-\frac{11}{2}c_1\partial_{\beta}\Gamma^{\chi\delta}_{\delta}\partial^{\alpha}\Gamma^{\alpha}\beta+\frac{19}{2}c_1\partial_{\beta}\Gamma^{\chi\delta}_{\delta}\partial^{\alpha}\Gamma^{\alpha\beta}_{\alpha}+\frac{11}{2}c_1\partial_{\chi}\Gamma^{\delta}_{\beta}\delta^{\alpha}\partial^{\alpha}\Gamma^{\alpha\beta}_{\alpha}-\frac{1}{2}c_1\partial_{\chi}\Gamma^{\delta}_{\beta\delta}\partial^{\alpha}\Gamma^{\alpha\beta}_{\alpha}+c_1\partial_{\alpha}\Gamma^{\chi\delta}_{\chi}\delta^{\alpha}\partial^{\alpha}\Gamma^{\alpha\beta}_{\beta}-\frac{1}{2}c_1\partial_{\chi}\Gamma^{\alpha\beta\chi}\partial_{\delta}\Gamma^{\alpha\beta}_{\delta}-\frac{1}{2}c_1\partial_{\beta}\Gamma^{\alpha\beta\chi}\partial_{\delta}\Gamma^{\alpha}_{\chi}\delta^{\alpha}+\frac{19}{2}c_1\partial_{\chi}\Gamma^{\alpha\beta\chi}\partial_{\delta}\Gamma^{\alpha\beta}_{\beta\delta}+c_1\partial^{\alpha}\Gamma^{\alpha}\beta\partial_{\delta}\Gamma^{\delta}_{\chi}+\frac{1}{2}c_1\partial^{\alpha}\Gamma^{\alpha}\beta\partial_{\delta}\Gamma^{\chi\delta}_{\chi}\delta^{\alpha}+\frac{1}{2}c_1\partial^{\alpha}\Gamma^{\alpha\beta}_{\alpha}\partial_{\delta}\Gamma^{\delta}_{\chi\beta}\delta^{\alpha}-\frac{1}{2}c_1\partial_{\beta}\Gamma^{\alpha\beta\chi}\partial_{\delta}\Gamma^{\delta}_{\chi\alpha}+\frac{1}{2}c_1\partial^{\alpha}\Gamma^{\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\chi\delta}\partial^{\delta}\Gamma^{\alpha\beta\chi}+c_1\partial_{\alpha}\Gamma^{\chi\beta\delta}\partial^{\delta}\Gamma^{\alpha\beta\chi}+\frac{1}{2}c_1\partial_{\alpha}\Gamma^{\chi\beta\delta}\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\chi\delta}\partial^{\delta}\Gamma^{\alpha\beta\chi}+\frac{1}{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\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^{\alpha}\beta\partial^{\delta}\Gamma^{\chi\alpha}_{\chi}-\frac{1}{2}c_1\partial^{\alpha}\Gamma^{\delta}_{\delta\alpha}\beta\partial^{\delta}\Gamma^{\chi}_{\beta\chi}+\frac{1}{2}c_1\partial_{\beta}\Gamma^{\delta}_{\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}$ | |

| | $\Gamma_{0^+}^{\#1}$ | $\Gamma_{0^+}^{\#2}$ | $\Gamma_{0^+}^{\#3}$ | $\Gamma_{0^+}^{\#4}$ | $h_{0^+}^{\#1}$ | $h_{0^+}^{\#2}$ | $\Gamma_{0^+}^{\#1}$ |
|------------------------|------------------------------|--------------------------|-----------------------------------|-----------------------------------|----------------------------|------------------------------|----------------------|
| $\Gamma_{0^+}^{\#1} +$ | $\frac{1}{2}(-a_0+25c_1k^2)$ | 0 | $10\sqrt{\frac{2}{3}}c_1k^2$ | $-\frac{10c_1k^2}{\sqrt{3}}$ | $-\frac{ia_0k}{2\sqrt{2}}$ | 0 | 0 |
| $\Gamma_{0^+}^{\#2} +$ | 0 | 0 | $\frac{a_0}{2}$ | $-\frac{a_0}{2\sqrt{2}}$ | 0 | 0 | 0 |
| $\Gamma_{0^+}^{\#3} +$ | $10\sqrt{\frac{2}{3}}c_1k^2$ | $\frac{a_0}{2}$ | $\frac{23c_1k^2}{3}$ | $-\frac{3a_0+6c_1k^2}{6\sqrt{2}}$ | $\frac{ia_0k}{4\sqrt{3}}$ | $\frac{1}{6}(3a_0+23c_1k^2)$ | 0 |
| $\Gamma_{0^+}^{\#4} +$ | $-\frac{10c_1k^2}{\sqrt{3}}$ | $-\frac{a_0}{2\sqrt{2}}$ | $-\frac{3a_0+6c_1k^2}{6\sqrt{2}}$ | $\frac{6\sqrt{2}}{4\sqrt{3}}$ | $\frac{ia_0k}{4\sqrt{6}}$ | 0 | 0 |
| $h_{0^+}^{\#1} +$ | $-\frac{ia_0k}{2\sqrt{2}}$ | 0 | $\frac{ia_0k}{4\sqrt{3}}$ | $\frac{ia_0k}{4\sqrt{6}}$ | 0 | 0 | 0 |
| $h_{0^+}^{\#2} +$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| $\Gamma_{0^+}^{\#1}$ | 0 | 0 | 0 | 0 | 0 | $\frac{1}{2}(-a_0+c_1k^2)$ | 0 |