

$\sigma_{1+}^{\#1\alpha\beta}$	$\sigma_{1+}^{\#2\alpha\beta}$	$\tau_{1+}^{\#1\alpha\beta}$	$\sigma_{1-}^{\#2\alpha}$	$\tau_{1-}^{\#1\alpha}$	$\tau_{1-}^{\#2\alpha}$
$\sigma_{1+}^{\#1\alpha\beta}$	$\frac{2(t_1+t_2)}{3t_1t_2+2k^2r_5(t_1+t_2)}$	$\frac{\sqrt{2}(t_1-2t_2)}{(1+k^2)(3t_1t_2+2k^2r_5(t_1+t_2))}$	0	0	0
$\sigma_{1+}^{\#2\alpha\beta}$	$\frac{\sqrt{2}(t_1-2t_2)}{(1+k^2)(3t_1t_2+2k^2r_5(t_1+t_2))}$	$\frac{6k^2r_5+t_1+4t_2}{(1+k^2)^2(3t_1t_2+2k^2r_5(t_1+t_2))}$	0	0	0
$\tau_{1+}^{\#1\alpha\beta}$	$-\frac{i\sqrt{2}k(t_1-2t_2)}{(1+k^2)(3t_1t_2+2k^2r_5(t_1+t_2))}$	$\frac{k^2(6k^2r_5+t_1+4t_2)}{(1+k^2)^2(3t_1t_2+2k^2r_5(t_1+t_2))}$	0	0	0
$\sigma_{1-}^{\#1\alpha}$	0	0	$\frac{\sqrt{2}}{t_1+2k^2t_1}$	0	$\frac{2ik}{t_1+2k^2t_1}$
$\sigma_{1-}^{\#2\alpha}$	0	0	$\frac{\sqrt{2}}{t_1+2k^2t_1}$	0	$-\frac{i\sqrt{2}k(2k^2r_5+t_1)}{(t_1+2k^2t_1)^2}$
$\tau_{1-}^{\#1\alpha}$	0	0	0	0	0
$\tau_{1-}^{\#2\alpha}$	0	0	$-\frac{2ik}{t_1+2k^2t_1}$	0	$\frac{-4k^4r_5+2k^2t_1}{(t_1+2k^2t_1)^2}$

Lagrangian density

$$\begin{aligned}
& -t_1\omega_{\kappa\alpha}^{\alpha'}\omega_{\kappa\alpha}^{\kappa}-\frac{1}{3}t_1\omega_{\kappa\lambda}^{\kappa\lambda}\omega_{\kappa\lambda}^{\kappa\lambda}\omega_{\kappa\lambda}^{\kappa\lambda}+\frac{2}{3}t_2\omega_{\kappa\lambda}^{\kappa\lambda}\omega_{\kappa\lambda}^{\kappa\lambda}\omega_{\kappa\lambda}^{\kappa\lambda}+\frac{1}{3}t_1\omega_{\kappa\lambda}^{\kappa\lambda}\omega_{\kappa\lambda}^{\kappa\lambda}\omega_{\kappa\lambda}^{\kappa\lambda}+ \\
& \frac{1}{3}t_2\omega_{\kappa\lambda}^{\kappa\lambda}\omega_{\kappa\lambda}^{\kappa\lambda}\omega_{\kappa\lambda}^{\kappa\lambda}\omega_{\kappa\lambda}^{\kappa\lambda}+\frac{2}{3}r_2\partial_\theta\omega_{\alpha\beta}^{\kappa}\partial_\kappa\omega_{\alpha\beta}^{\kappa}\partial_\kappa\omega_{\alpha\beta}^{\kappa}\partial_\kappa\omega_{\alpha\beta}^{\kappa}- \\
& \frac{1}{3}r_2\partial_\theta\omega_{\alpha\beta}^{\kappa}\partial_\kappa\omega_{\alpha\beta}^{\kappa}\partial_\kappa\omega_{\alpha\beta}^{\kappa}\partial_\kappa\omega_{\alpha\beta}^{\kappa}-\frac{2}{3}r_2\partial_\theta\omega_{\alpha\beta}^{\kappa}\partial_\kappa\omega_{\alpha\beta}^{\kappa}\partial_\kappa\omega_{\alpha\beta}^{\kappa}\partial_\kappa\omega_{\alpha\beta}^{\kappa}+ \\
& r_5\partial_\theta\omega_{\lambda\alpha}^{\alpha}\partial_\kappa\omega_{\lambda\alpha}^{\theta\kappa\lambda}-r_5\partial_\alpha\omega_{\lambda\theta}^{\alpha}\partial_\kappa\omega_{\lambda\theta}^{\kappa\lambda\theta}+2r_5\partial_\theta\omega_{\lambda\alpha}^{\alpha}\partial_\kappa\omega_{\lambda\theta}^{\kappa\lambda\theta}- \\
& \frac{1}{3}t_1\partial^\alpha f_{\theta\kappa}\partial^\kappa f_{\alpha}^{\theta}+\frac{1}{6}t_2\partial^\alpha f_{\theta\kappa}\partial^\kappa f_{\alpha}^{\theta}-\frac{2}{3}t_1\partial^\alpha f_{\kappa\theta}\partial^\kappa f_{\alpha}^{\theta}- \\
& \frac{1}{6}t_2\partial^\alpha f_{\kappa\theta}\partial^\kappa f_{\alpha}^{\theta}-\frac{1}{3}t_1\partial^\alpha f_{\kappa\alpha}\partial^\kappa f_{\alpha\lambda}+\frac{1}{6}t_2\partial^\alpha f_{\kappa\alpha}\partial^\kappa f_{\alpha\lambda}+t_1\omega_{\kappa\alpha}^{\alpha}\partial^\kappa f_{\alpha}^{\kappa}+ \\
& t_1\omega_{\kappa\lambda}^{\lambda}\partial^\kappa f_{\alpha}^{\kappa}+2t_1\partial^\alpha f_{\kappa\alpha}\partial^\kappa f_{\alpha}^{\kappa}-t_1\partial_\kappa f_{\lambda}^{\lambda}\partial^\kappa f_{\alpha}^{\kappa}+\frac{1}{3}t_1\omega_{\theta\kappa}\partial^\kappa f_{\alpha}^{\kappa}+ \\
& \frac{1}{3}t_2\omega_{\theta\kappa}\partial^\kappa f_{\alpha}^{\kappa}+\frac{4}{3}t_1\omega_{\theta\kappa}\partial^\kappa f_{\alpha}^{\kappa}-\frac{2}{3}t_2\omega_{\theta\kappa}\partial^\kappa f_{\alpha}^{\kappa}-\frac{1}{3}t_1\omega_{\theta\kappa}\partial^\kappa f_{\alpha}^{\kappa}- \\
& \frac{1}{3}t_2\omega_{\theta\kappa}\partial^\kappa f_{\alpha}^{\kappa}+\frac{2}{3}t_1\omega_{\theta\kappa}\partial^\kappa f_{\alpha}^{\kappa}+\frac{2}{3}t_2\omega_{\theta\kappa}\partial^\kappa f_{\alpha}^{\kappa}-t_1\omega_{\alpha}^{\alpha}\partial^\kappa f_{\kappa}^{\kappa}- \\
& t_1\omega_{\lambda}^{\lambda}\partial^\kappa f_{\kappa}^{\kappa}+\frac{1}{3}t_1\partial^\alpha f_{\kappa}^{\kappa}\partial^\kappa f_{\lambda\alpha}-\frac{1}{6}t_2\partial^\alpha f_{\kappa}^{\kappa}\partial^\kappa f_{\lambda\alpha}+\frac{1}{3}t_1\partial_\kappa f_{\lambda}^{\lambda}\partial^\kappa f_{\alpha}^{\kappa}- \\
& \frac{1}{6}t_2\partial_\kappa f_{\lambda}^{\lambda}\partial^\kappa f_{\alpha}^{\kappa}+\frac{2}{3}t_1\partial_\kappa f_{\alpha}^{\kappa}\partial^\kappa f_{\lambda}^{\lambda}+\frac{1}{6}t_2\partial_\kappa f_{\alpha}^{\kappa}\partial^\kappa f_{\lambda}^{\lambda}-t_1\partial^\alpha f_{\alpha}^{\kappa}\partial^\kappa f_{\lambda\kappa}+ \\
& \frac{1}{3}r_2\partial_\kappa\omega_{\alpha\beta}^{\theta\kappa}\partial^\kappa\omega_{\alpha\beta}^{\theta\kappa}+\frac{2}{3}r_2\partial_\kappa\omega_{\alpha\beta}^{\theta\kappa}\partial^\kappa\omega_{\alpha\beta}^{\theta\kappa}-\frac{2}{3}r_2\partial_\kappa\omega_{\alpha\beta}^{\theta\kappa}\partial^\kappa\omega_{\alpha\beta}^{\theta\kappa}+\frac{1}{3}r_2\partial_\kappa\omega_{\alpha\beta}^{\theta\kappa}\partial^\kappa\omega_{\alpha\beta}^{\theta\kappa}+ \\
& \frac{2}{3}r_2\partial_\kappa\omega_{\alpha\beta}^{\theta\kappa}\partial^\kappa\omega_{\alpha\beta}^{\theta\kappa}+\frac{1}{3}r_5\partial_\alpha\omega_{\lambda\theta}^{\alpha}\partial^\kappa\omega_{\lambda\theta}^{\theta\kappa}-r_5\partial_\theta\omega_{\lambda\alpha}^{\alpha}\partial^\kappa\omega_{\lambda\alpha}^{\theta\kappa}- \\
& \text{Added source term: } f^{\alpha\beta}\tau_{\alpha\beta}+\omega^{\alpha\beta\chi}\sigma_{\alpha\beta\chi}
\end{aligned}$$

Source constraints	
SO(3) irreps	#
$\tau_{0+}^{\#2} == 0$	1
$\tau_{0+}^{\#1} - 2ik\sigma_{0+}^{\#1} == 0$	1
$\tau_{1-}^{\#2\alpha} + 2ik\sigma_{1-}^{\#2\alpha} == 0$	3
$\tau_{1-}^{\#1\alpha} == 0$	3
$\tau_{1+}^{\#1\alpha\beta} + ik\sigma_{1+}^{\#2\alpha\beta} == 0$	3
$\tau_{2+}^{\#1\alpha\beta} - 2ik\sigma_{2+}^{\#1\alpha\beta} == 0$	5
Total #:	16

	$\omega_{2^+}^{\#1} \alpha \beta$	$f_{2^+}^{\#1} \alpha \beta$	$\omega_{2^-}^{\#1} \alpha \beta \chi$
$\omega_{2^+}^{\#1} \dagger \alpha \beta$	$\frac{t_1}{2}$	$-\frac{i k t_1}{\sqrt{2}}$	0
$f_{2^+}^{\#1} \dagger \alpha \beta$	$\frac{i k t_1}{\sqrt{2}}$	$k^2 t_1$	0
$\omega_{2^-}^{\#1} \dagger \alpha \beta \chi$	0	0	$\frac{t_1}{2}$

$\sigma_{0+}^{\#1}$	$\tau_{0+}^{\#1}$	$\tau_{0+}^{\#2}$	$\sigma_{0-}^{\#1}$
$\sigma_{0+}^{\#1}$	$-\frac{1}{(1+2k^2)^2t_1}$	$\frac{i\sqrt{2}k}{(1+2k^2)^2t_1}$	0
$\tau_{0+}^{\#1}$	$-\frac{i\sqrt{2}k}{(1+2k^2)^2t_1}$	$-\frac{2k^2}{(1+2k^2)^2t_1}$	0
$\tau_{0+}^{\#2}$	0	0	0
$\sigma_{0-}^{\#1}$	0	0	$\frac{1}{k^2r_2+t_2}$

Massive particle

Pole residue:	$\frac{-3t_1t_2(t_1+t_2)+3r_5(t_1^2+2t_2^2)}{r_5(t_1+t_2)(-3t_1t_2+2r_5(t_1+t_2))} > 0$
Polarisations:	3
Square mass:	$-\frac{3t_1t_2}{2r_5t_1+2r_5t_2} > 0$
Spin:	1
Parity:	Even

Massive particle

Pole residue:	$-\frac{1}{r_2} > 0$
Polarisations:	1
Square mass:	$-\frac{t_2}{r_2} > 0$
Spin:	0
Parity:	Odd

Unitarity conditions

$$r_2 < 0 \ \&\& \ r_5 > 0 \ \&\& \ t_1 < 0 \ \&\& \ t_2 > -t_1$$

(No massless particles)

	$\omega_{1+}^{\#1\alpha\beta}$	$\omega_{1+}^{\#2\alpha\beta}$	$f_{1+}^{\#1\alpha\beta}$	$\omega_{1-}^{\#1\alpha}$	$\omega_{1-}^{\#2\alpha}$	$f_{1-}^{\#1\alpha}$	$f_{1-}^{\#2\alpha}$
$\omega_{1+}^{\#1\alpha\beta}$	$\frac{1}{6}(6k^2r_5+t_1+4t_2)$	$-\frac{t_1-2t_2}{3\sqrt{2}}$	$-\frac{ik(t_1-2t_2)}{3\sqrt{2}}$	0	0	0	0
$\omega_{1+}^{\#2\alpha\beta}$	$-\frac{t_1-2t_2}{3\sqrt{2}}$	$\frac{t_1+t_2}{3}$	$\frac{1}{3}ik(t_1+t_2)$	0	0	0	0
$f_{1+}^{\#1\alpha\beta}$	$\frac{ik(t_1-2t_2)}{3\sqrt{2}}$	$-\frac{1}{3}ik(t_1+t_2)$	$\frac{1}{3}k^2(t_1+t_2)$	0	0	0	0
$\omega_{1-}^{\#1\alpha}$	0	0	0	$k^2r_5-\frac{t_1}{2}$	$\frac{t_1}{\sqrt{2}}$	0	$ik t_1$
$\omega_{1-}^{\#2\alpha}$	0	0	0	$\frac{t_1}{\sqrt{2}}$	0	0	0
$f_{1-}^{\#1\alpha}$	0	0	0	0	0	0	0
$f_{1-}^{\#2\alpha}$	0	0	0	$-ik t_1$	0	0	0

	$\omega_{0+}^{\#1}$	$f_{0+}^{\#1}$	$f_{0+}^{\#2}$	$\omega_{0-}^{\#1}$
$\omega_{0+}^{\#1}$	$-t_1$	$i\sqrt{2}kt_1$	0	0
$f_{0+}^{\#1}$	$-i\sqrt{2}kt_1$	$-2k^2t_1$	0	0
$f_{0+}^{\#2}$	0	0	0	0
$\omega_{0-}^{\#1}$	0	0	0	$k^2r_2+t_2$

	$\sigma_{2+}^{\#1\alpha\beta}$	$\tau_{2+}^{\#1\alpha\beta}$	$\sigma_{2-}^{\#1\alpha\beta\chi}$
$\sigma_{2+}^{\#1\alpha\beta}$	$\frac{2}{(1+2k^2)^2t_1}$	$-\frac{2i\sqrt{2}k}{(1+2k^2)^2t_1}$	0
$\tau_{2+}^{\#1\alpha\beta}$	$\frac{2i\sqrt{2}k}{(1+2k^2)^2t_1}$	$\frac{4k^2}{(1+2k^2)^2t_1}$	0
$\sigma_{2-}^{\#1\alpha\beta\chi}$	0	0	$\frac{2}{t_1}$