

$\omega_{0+}^{\#1}$	$f_{0+}^{\#1}$	$f_{0+}^{\#2}$	$\omega_{0-}^{\#1}$
$\omega_{0+}^{\#1} +$	$t_3$	$-i\sqrt{2}kt_3$	0
$f_{0+}^{\#1} +$	$i\sqrt{2}kt_3$	$2k^2t_3$	0
$f_{0+}^{\#2} +$	0	0	0
$\omega_{0+}^{\#1} +$	0	0	$k^2r_2+t_2$

$\omega_{2+}^{\#1}$	$f_{2+}^{\#1}$	$\omega_{2-}^{\#1}$
$\omega_{2+}^{\#1} + \alpha\beta$	$-\frac{3k^2r_3}{2}$	0
$f_{2+}^{\#1} + \alpha\beta$	0	0
$\omega_{2-}^{\#1} + \alpha\beta\chi$	0	0

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
$\sigma_{2-}^{\#1\alpha\beta\chi} == 0$	5
$\tau_{2+}^{\#1\alpha\beta} == 0$	5
Total #:	21

	$\sigma_{0+}^{\#1}$	$\tau_{0+}^{\#1}$	$\tau_{0+}^{\#2}$	$\sigma_{0-}^{\#1}$
$\sigma_{0+}^{\#1} +$	$\frac{1}{(1+2k^2)^2t_3}$	$-\frac{i\sqrt{2}k}{(1+2k^2)^2t_3}$	0	0
$\tau_{0+}^{\#1} +$	$\frac{i\sqrt{2}k}{(1+2k^2)^2t_3}$	$\frac{2k^2}{(1+2k^2)^2t_3}$	0	0
$\tau_{0+}^{\#2} +$	0	0	0	0
$\sigma_{0-}^{\#1} +$	0	0	0	$\frac{1}{k^2r_2+t_2}$

	$\sigma_{2+}^{\#1\alpha\beta}$	$\tau_{2+}^{\#1\alpha\beta}$	$\sigma_{2-}^{\#1\alpha\beta\chi}$
$\sigma_{2+}^{\#1} + \alpha\beta$	$-\frac{2}{3k^2r_3}$	0	0
$\tau_{2+}^{\#1} + \alpha\beta$	0	0	0
$\sigma_{2-}^{\#1} + \alpha\beta\chi$	0	0	0

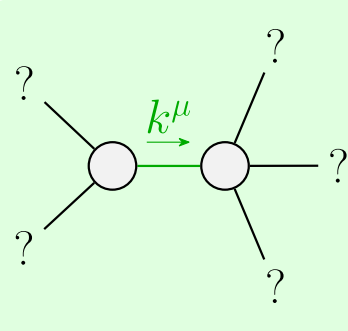
### Lagrangian density

$$\begin{aligned} &\frac{2}{3}t_3\omega_{,\alpha'}\omega_{\kappa\alpha}^{\kappa}+\frac{2}{3}t_2\omega_{,\kappa\lambda}'\omega_{\kappa\lambda}'+\frac{1}{3}t_2\omega_{\kappa\lambda}'\omega_{,\lambda}^{\kappa\lambda}- \\ &\frac{1}{2}r_3\partial_{,\kappa}\omega_{\kappa}^{\kappa\lambda}\partial_{,\lambda}'\omega_{\lambda}^{\alpha}-r_5\partial_{,\kappa}\omega_{\kappa}^{\kappa\lambda}\partial_{,\lambda}'\omega_{\lambda}^{\alpha}+\frac{2}{3}r_2\partial^{\beta}\omega^{\theta\alpha}_{\kappa}\partial_{\theta\omega}^{\kappa}- \\ &\frac{1}{3}r_2\partial_{\theta\omega}^{\kappa}\omega_{\alpha\beta}^{\kappa}\partial_{\kappa}\omega^{\alpha\beta\theta}-\frac{2}{3}r_2\partial_{\theta\omega}^{\kappa}\omega_{\alpha\beta}^{\kappa}\partial_{\kappa}\omega^{\theta\alpha\beta}+\frac{1}{2}r_3\partial_{\alpha}\omega_{\lambda}^{\alpha}\partial_{\theta}\omega^{\theta\kappa\lambda}- \\ &r_5\partial_{\alpha}\omega_{\lambda}^{\alpha}\partial_{\theta}\omega^{\theta\kappa\lambda}-\frac{1}{2}r_3\partial_{\theta\omega}^{\kappa}\omega_{\alpha}^{\alpha}\partial_{\kappa}\omega^{\theta\kappa\lambda}+r_5\partial_{\theta\omega}^{\kappa}\omega_{\alpha}^{\alpha}\partial_{\kappa}\omega^{\theta\kappa\lambda}- \\ &\frac{1}{2}r_3\partial_{\alpha}\omega_{\lambda}^{\alpha}\partial_{\theta}\omega^{\theta\kappa\lambda\theta}-r_5\partial_{\alpha}\omega_{\lambda}^{\alpha}\partial_{\theta}\omega^{\theta\kappa\lambda\theta}+r_3\partial_{\theta\omega}^{\kappa}\omega_{\alpha}^{\alpha}\partial_{\kappa}\omega^{\kappa\lambda\theta}+ \\ &2r_5\partial_{\theta\omega}^{\kappa}\omega_{\alpha}^{\alpha}\partial_{\kappa}\omega^{\kappa\lambda\theta}+\frac{1}{6}t_2\partial^{\alpha}f_{\theta\kappa}^{\alpha}\partial^{\alpha}f_{\alpha}^{\theta}-\frac{1}{6}t_2\partial^{\alpha}f_{\alpha}^{\theta}\partial^{\alpha}f_{\theta}^{\alpha}+\frac{1}{6}t_2\partial^{\alpha}f_{\kappa}^{\lambda}\partial^{\alpha}f_{\alpha\lambda}^{\lambda}-\frac{2}{3}t_3\omega_{\kappa\alpha}^{\alpha}\partial^{\alpha}f_{,\lambda}'-\frac{4}{3}t_3\partial^{\alpha}f_{\kappa\alpha}\partial^{\alpha}f_{,\lambda}'+ \\ &\frac{2}{3}t_3\partial_{\kappa}f_{\lambda}^{\lambda}\partial^{\alpha}f_{,\lambda}'+\frac{1}{3}t_2\omega_{\iota\theta\kappa}\partial^{\alpha}f_{,\lambda}'\partial^{\alpha}f_{\iota\theta}^{\theta}-\frac{2}{3}t_2\omega_{\iota\kappa\theta}\partial^{\alpha}f_{,\lambda}'\partial^{\alpha}f_{\iota\theta}^{\theta}-\frac{1}{3}t_2\omega_{\theta\iota\kappa}\partial^{\alpha}f_{\lambda\alpha}^{\lambda}- \\ &\frac{2}{3}t_2\omega_{\theta\iota\kappa}\partial^{\alpha}f_{,\lambda}'\partial^{\alpha}f_{\iota\theta}^{\theta}+\frac{2}{3}t_3\omega_{\iota\alpha}^{\alpha}\partial^{\alpha}f_{,\kappa}'+\frac{2}{3}t_3\omega_{\iota\lambda}^{\lambda}\partial^{\alpha}f_{,\kappa}'-\frac{1}{6}t_2\partial^{\alpha}f_{\lambda\kappa}^{\lambda}\partial^{\alpha}f_{\lambda\alpha}^{\lambda}- \\ &\frac{1}{6}t_2\partial_{\kappa}f_{\theta}^{\lambda}\partial^{\alpha}f_{\lambda}^{\theta}+\frac{1}{6}t_2\partial_{\kappa}f_{\lambda}^{\theta}\partial^{\alpha}f_{\lambda}^{\theta}+\frac{2}{3}t_3\partial^{\alpha}f_{\lambda\kappa}^{\lambda}\partial^{\alpha}f_{\lambda\kappa}^{\lambda}+ \\ &\frac{1}{2}r_2\partial_{\kappa}\omega^{\alpha\beta\theta}\partial^{\alpha}\omega_{\alpha\beta\theta}+\frac{2}{3}r_2\partial_{\kappa}\omega^{\theta\alpha\beta}\partial^{\alpha}\omega_{\alpha\beta\theta}-\frac{2}{3}r_2\partial^{\beta}\omega_{,\lambda}'\partial_{\lambda}\omega_{\alpha\beta}^{\alpha}+\frac{1}{2}r_3\partial^{\beta}\omega_{,\lambda}'\partial_{\lambda}\omega_{\alpha\beta}^{\alpha}+\frac{1}{2}r_5\partial_{\alpha}\omega_{\lambda}^{\alpha}\partial_{\lambda}\omega_{\alpha\beta}^{\alpha}-4r_3\partial^{\beta}\omega_{,\lambda}'\partial_{\lambda}\omega_{\alpha\beta}^{\alpha}-r_5\partial_{\theta\omega}^{\kappa}\omega_{\alpha}^{\alpha}\partial^{\lambda}\omega^{\theta\kappa}_{\kappa} \end{aligned}$$

$$\text{Added source term: } f^{\alpha\beta}\tau_{\alpha\beta} + \omega^{\alpha\beta\chi}\sigma_{\alpha\beta\chi}$$

	$\omega_{1+}^{\#1\alpha\beta}$	$\omega_{1+}^{\#2\alpha\beta}$	$f_{1+}^{\#1\alpha\beta}$	$\omega_{1-}^{\#1\alpha}$	$\omega_{1-}^{\#2\alpha}$	$f_{1-}^{\#1\alpha}$	$f_{1-}^{\#2\alpha}$
$\omega_{1+}^{\#1} + \alpha\beta$	$k^2(2r_3+r_5) + \frac{2t_2}{3}$	$\frac{\sqrt{2}t_2}{3}$	$\frac{1}{3}i\sqrt{2}kt_2$	0	0	0	0
$\omega_{1+}^{\#2} + \alpha\beta$	$\frac{\sqrt{2}t_2}{3}$	$\frac{t_2}{3}$	$\frac{ikt_2}{3}$	0	0	0	0
$f_{1+}^{\#1} + \alpha\beta$	$-\frac{1}{3}i\sqrt{2}kt_2$	$-\frac{1}{3}ikt_2$	$\frac{k^2t_2}{3}$	0	0	0	0
$\omega_{1-}^{\#1} + \alpha$	0	0	0	$k^2(\frac{r_3}{2}+r_5) + \frac{2t_3}{3}$	$-\frac{\sqrt{2}t_3}{3}$	0	$-\frac{2}{3}ikt_3$
$\omega_{1-}^{\#2} + \alpha$	0	0	0	$-\frac{\sqrt{2}t_3}{3}$	$\frac{t_3}{3}$	0	$\frac{1}{3}i\sqrt{2}kt_3$
$f_{1-}^{\#1} + \alpha$	0	0	0	0	0	0	0
$f_{1-}^{\#2} + \alpha$	0	0	0	$\frac{2ikt_3}{3}$	$-\frac{1}{3}i\sqrt{2}kt_3$	0	$\frac{2k^2t_3}{3}$

	$\sigma_{1+}^{\#1\alpha\beta}$	$\sigma_{1+}^{\#2\alpha\beta}$	$\tau_{1+}^{\#1\alpha\beta}$	$\sigma_{1-}^{\#1\alpha}$	$\sigma_{1-}^{\#2\alpha}$	$\tau_{1-}^{\#1\alpha}$	$\tau_{1-}^{\#2\alpha}$
$\sigma_{1+}^{\#1} + \alpha\beta$	$\frac{1}{k^2(2r_3+r_5)}$	$-\frac{\sqrt{2}}{k^2(1+k^2)(2r_3+r_5)}$	$-\frac{i\sqrt{2}}{k(1+k^2)(2r_3+r_5)}$	0	0	0	0
$\sigma_{1+}^{\#2} + \alpha\beta$	$-\frac{\sqrt{2}}{k^2(1+k^2)(2r_3+r_5)}$	$\frac{3k^2(2r_3+r_5)+2t_2}{(k+k^3)^2(2r_3+r_5)t_2}$	$\frac{i(3k^2(2r_3+r_5)+2t_2)}{k(1+k^2)^2(2r_3+r_5)t_2}$	0	0	0	0
$\tau_{1+}^{\#1} + \alpha\beta$	$\frac{i\sqrt{2}}{k(1+k^2)(2r_3+r_5)}$	$-\frac{i(3k^2(2r_3+r_5)+2t_2)}{k(1+k^2)^2(2r_3+r_5)t_2}$	$\frac{3k^2(2r_3+r_5)+2t_2}{(1+k^2)^2(2r_3+r_5)t_2}$	0	0	0	0
$\sigma_{1-}^{\#1} + \alpha$	0	0	0	$\frac{k^2(r_3+2r_5)}{2\sqrt{2}}$	0	0	$\frac{4i}{k(1+2k^2)^2(r_3+2r_5)}$
$\sigma_{1-}^{\#2} + \alpha$	0	0	0	$\frac{2\sqrt{2}}{k^2(1+2k^2)(r_3+2r_5)}$	0	0	$\frac{6k^2(r_3+2r_5)+8t_3}{(1+2k^2)^2(r_3+2r_5)t_3}$
$\tau_{1-}^{\#1} + \alpha$	0	0	0	0	0	0	0
$\tau_{1-}^{\#2} + \alpha$	0	0	0	$-\frac{4i}{k(1+2k^2)^2(r_3+2r_5)}$	$-\frac{i\sqrt{2}(3k^2(r_3+2r_5)+4t_3)}{k(1+2k^2)^2(r_3+2r_5)t_3}$	0	$\frac{6k^2(r_3+2r_5)+8t_3}{(1+2k^2)^2(r_3+2r_5)t_3}$

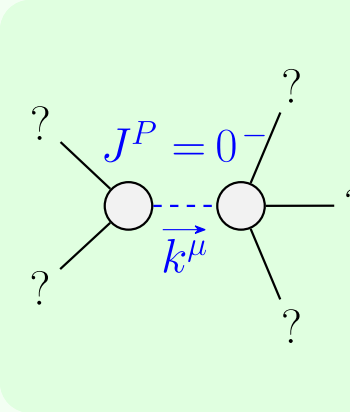


Quadratic pole	
Pole residue:	$-\frac{1}{r_3(2r_3+r_5)(r_3+2r_5)p^2} > 0$
Polarisations:	2

Unitarity conditions

$$r_2 < 0 \& r_3 < 0 \& r_5 < -\frac{r_3}{2} \& t_2 > 0 \parallel r_2 < 0 \& r_3 < 0 \& r_5 > -2r_3 \& t_2 > 0 \parallel$$

$$r_2 < 0 \& r_3 > 0 \& -2r_3 < r_5 < -\frac{r_3}{2} \& t_2 > 0$$



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