



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

$r_2 < 0 \ \&\& \ t_2 > 0$

(No massless particles)

Lagrangian density

$$\begin{aligned} &\frac{2}{3}t_3\omega_{'}^{\alpha\iota}\omega_{\kappa\alpha}^{'}{}^\kappa+\frac{2}{3}t_2\omega_{'}^{\kappa\lambda}\omega_{\kappa\lambda}^{'}{}^\iota+\frac{1}{3}t_2\omega_{\kappa\lambda}^{'}{}^\iota\omega_{'}^{\kappa\lambda}+f^{\alpha\beta}\tau_{\alpha\beta}+\\ &\omega^{\alpha\beta\chi}\sigma_{\alpha\beta\chi}-r_5\partial_{\iota}\omega_{'}^{\kappa\lambda}\partial_{'}^{\iota}\omega_{\lambda\alpha}^{'}{}^\kappa+\frac{2}{3}r_2\partial^{\theta}\omega_{'}^{\theta\alpha}\partial_{\theta}\omega_{'}^{\kappa}{}_{\alpha\beta}-\frac{1}{3}r_2\partial_{\theta}\omega_{'}^{\kappa}\partial_{\alpha}\omega^{\alpha\beta\theta}-\\ &\frac{2}{3}r_2\partial_{\theta}\omega_{\alpha\beta}^{'}{}^\kappa\partial_{\kappa}\omega^{\theta\alpha\beta}-r_5\partial_{\alpha}\omega_{\lambda\theta}^{\alpha}\partial_{\theta}\omega_{'}^{\theta\kappa\lambda}+r_5\partial_{\theta}\omega_{\lambda\alpha}^{\alpha}\partial_{\kappa}\omega^{\theta\kappa\lambda}-r_5\partial_{\alpha}\omega_{\lambda\theta}^{\alpha}\partial_{\kappa}\omega^{\kappa\lambda\theta}+\\ &2r_5\partial_{\theta}\omega_{\lambda\alpha}^{\alpha}\partial_{\kappa}\omega^{\kappa\lambda\theta}+\frac{1}{6}t_2\partial^{\alpha}f_{\theta\kappa}\partial^{\kappa}f_{\alpha}^{\theta}-\frac{1}{6}t_2\partial_2^{\alpha}f_{'}{}_{\kappa\theta}\partial^{\kappa}f_{\alpha}^{\theta}+\frac{1}{6}t_2\partial^{\alpha}f_{\lambda}^{\theta}\partial^{\kappa}f_{\alpha\lambda}{}^{\theta}-\\ &\frac{2}{3}t_3\omega_{\kappa\alpha}^{\alpha}\partial^{\kappa}f_{'}{}_{\iota}{}^{\iota}-\frac{2}{3}t_3\omega_{\kappa\lambda}^{\lambda}\partial^{\kappa}f_{'}{}_{\iota}{}^{\iota}-\frac{4}{3}t_3\partial^{\alpha}f_{'}{}_{\kappa\alpha}\partial^{\kappa}f_{'}{}_{\iota}{}^{\iota}+\frac{2}{3}t_3\partial_{\kappa}f_{\lambda}^{\lambda}\partial^{\kappa}f_{'}{}_{\iota}{}^{\iota}+\\ &\frac{1}{3}t_2\omega_{\iota\theta\kappa}\partial^{\kappa}f^{\iota\theta}-\frac{2}{3}t_2\omega_{\iota\kappa\theta}\partial^{\kappa}f^{\iota\theta}-\frac{1}{3}t_2\omega_{\theta\iota\kappa}\partial^{\kappa}f^{\iota\theta}+\frac{2}{3}t_2\omega_{\theta\kappa\iota}\partial^{\kappa}f^{\iota\theta}+\\ &\frac{2}{3}t_3\omega_{\iota\alpha}^{\alpha}\partial^{\kappa}f_{'}{}_{\kappa}{}^{\kappa}+\frac{2}{3}t_3\omega_{'}{}_{\iota\lambda}^{\lambda}\partial^{\kappa}f_{'}{}_{\kappa}{}^{\kappa}-\frac{1}{6}t_2\partial^{\alpha}f_{'}{}_{\kappa}^{\kappa}\partial^{\lambda}f_{\lambda}^{\theta}-\frac{1}{6}t_2\partial_{\kappa}f_{\theta}^{\lambda}\partial^{\kappa}f_{\lambda}^{\theta}+\\ &\frac{1}{6}t_2\partial_{\kappa}f_{\theta}^{\lambda}\partial^{\kappa}f_{\lambda}^{\theta}+\frac{2}{3}t_3\partial^{\alpha}f_{\alpha}^{\lambda}\partial^{\kappa}f_{\lambda\kappa}{}^{\kappa}+\frac{1}{3}r_2\partial_{\kappa}\omega^{\alpha\beta\theta}\partial^{\kappa}\omega_{\alpha\beta\theta}+\frac{2}{3}r_2\partial_{\kappa}\omega^{\theta\alpha\beta}\partial^{\kappa}\omega_{\alpha\beta\theta}-\\ &\frac{2}{3}r_2\partial^{\theta}\omega_{'}{}_{\lambda}^{\alpha\lambda}\partial_{\lambda}\omega_{\alpha\beta}^{'}{}^\iota+\frac{2}{3}r_2\partial^{\theta}\omega_{'}{}_{\lambda}^{\lambda\alpha}\partial_{\lambda}\omega_{\alpha\beta}^{'}{}^\iota+r_5\partial_{\alpha}\omega_{\lambda'}^{\alpha}\partial^{\lambda}\omega_{'}{}_{\kappa}{}^{\theta\kappa}-r_5\partial_{\theta}\omega_{\lambda'}^{\alpha}\partial^{\lambda}\omega_{'}{}_{\kappa}{}^{\theta\kappa} \end{aligned}$$

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

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
$\sigma_{2+}^{\#1\alpha\beta}==0$	5
Total #:	26

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

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

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

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