

Massive particle	
Pole residue:	$-\frac{1}{r_1} > 0$
Polarisations:	5
Square mass:	$-\frac{t_1}{2r_1} > 0$
Spin:	2
Parity:	Odd

Unitarity conditions

$r_1 < 0 \ \&\& \ t_1 > 0$

(No massless particles)

$\sigma_{1+}^{\#1} \dagger^{\alpha\beta}$	$\sigma_{1+}^{\#2} \alpha\beta$	$\tau_{1+}^{\#1} \alpha\beta$	$\sigma_{1-}^{\#1} \alpha$	$\sigma_{1-}^{\#2} \alpha$	$\tau_{1-}^{\#1} \alpha$	$\tau_{1-}^{\#2} \alpha$
0	$-\frac{\sqrt{2}}{t_1+k^2t_1}$	$-\frac{i\sqrt{2}k}{t_1+k^2t_1}$	0	0	0	0
$-\frac{\sqrt{2}}{t_1+k^2t_1}$	$\frac{-2k^2r_1+t_1}{(1+k^2)^2t_1^2}$	$-\frac{i(2k^3r_1-kt_1)}{(1+k^2)^2t_1^2}$	0	0	0	0
$\frac{i\sqrt{2}k}{t_1+k^2t_1}$	$\frac{i(2k^3r_1-kt_1)}{(1+k^2)^2t_1^2}$	$\frac{-2k^4r_1+k^2t_1}{(1+k^2)^2t_1^2}$	0	0	0	0
0	0	0	0	$\frac{\sqrt{2}}{t_1+2k^2t_1}$	0	$\frac{2ik}{t_1+2k^2t_1}$
0	0	0	0	$\frac{\sqrt{2}}{t_1+2k^2t_1}$	0	$\frac{i\sqrt{2}k}{(1+2k^2)^2t_1}$
0	0	0	0	0	0	0
0	0	0	$-\frac{2ik}{t_1+2k^2t_1}$	$-\frac{i\sqrt{2}k}{(1+2k^2)^2t_1}$	0	$\frac{2k^2}{(1+2k^2)^2t_1}$

Lagrangian density

$$\begin{aligned}
& -t_1 \omega_{\lambda'}^{\alpha'} \omega_{\kappa\alpha}^{\kappa} - t_1 \omega_{\lambda'}^{\kappa\lambda} \omega_{\kappa\lambda}^{'\alpha} + f^{\alpha\beta} \tau_{\alpha\beta} + \omega^{\alpha\beta\chi} \sigma_{\alpha\beta\chi} + r_1 \partial_\lambda \omega^{\kappa\lambda} \partial'_\lambda \omega_{\lambda}^{\alpha} - \\
& \frac{2}{3} r_1 \partial^\beta \omega_{\kappa}^{\theta\alpha} \partial_\theta \omega_{\alpha\beta}^{\kappa} - \frac{2}{3} r_1 \partial_\theta \omega_{\alpha\beta}^{\kappa} \partial_\kappa \omega^{\alpha\beta\theta} + \frac{2}{3} r_1 \partial_\theta \omega_{\alpha\beta}^{\kappa} \partial_\kappa \omega^{\theta\alpha\beta} + \\
& r_1 \partial_\alpha \omega_{\lambda}^{\alpha} \partial_\kappa \omega_{\theta}^{\theta\kappa\lambda} - r_1 \partial_\theta \omega_{\lambda}^{\alpha} \partial_\kappa \omega_{\alpha}^{\theta\kappa\lambda} + r_1 \partial_\alpha \omega_{\lambda}^{\alpha} \partial_\theta \omega_{\theta}^{\kappa\lambda\theta} - 2 r_1 \partial_\theta \omega_{\lambda}^{\alpha} \partial_\alpha \omega_{\theta}^{\kappa\lambda\theta} - \\
& \frac{1}{2} t_1 \partial^\alpha f_{\theta\kappa} \partial_\kappa f_{\alpha}^{\theta} - \frac{1}{2} t_1 \partial^\alpha f_{\kappa\theta} \partial_\theta f_{\alpha}^{\kappa} - \frac{1}{2} t_1 \partial^\alpha f_{\lambda}^{\kappa} \partial_\kappa f_{\alpha\lambda}^{\theta} + t_1 \omega_{\kappa\alpha}^{\alpha} \partial^\kappa f_{\lambda}^{'\alpha} + \\
& t_1 \omega_{\kappa\lambda}^{\lambda} \partial^\kappa f_{\lambda'}^{'\alpha} + 2 t_1 \partial^\alpha f_{\kappa\alpha} \partial^\kappa f_{\lambda'}^{'\alpha} - t_1 \partial_\kappa f_{\lambda}^{\lambda} \partial^\kappa f_{\lambda'}^{'\alpha} + 2 t_1 \omega_{\lambda\kappa\theta} \partial^\kappa f_{\lambda'}^{'\theta} - \\
& t_1 \omega_{\lambda\alpha}^{\alpha} \partial^\kappa f_{\kappa}^{'\theta} - t_1 \omega_{\lambda\lambda}^{\lambda} \partial^\kappa f_{\kappa}^{'\alpha} + \frac{1}{2} t_1 \partial^\alpha f_{\lambda}^{\kappa} \partial_\kappa f_{\lambda\alpha}^{\theta} + \frac{1}{2} t_1 \partial_\kappa f_{\theta}^{\lambda} \partial^\kappa f_{\theta}^{\lambda} + \\
& \frac{1}{2} t_1 \partial_\kappa f_{\theta}^{\lambda} \partial^\kappa f_{\lambda}^{\theta} - t_1 \partial^\alpha f_{\alpha}^{\lambda} \partial^\kappa f_{\lambda\kappa}^{\theta} + \frac{2}{3} r_1 \partial_\kappa \omega^{\alpha\beta\theta} \partial^\kappa \omega_{\alpha\beta\theta} - \frac{2}{3} r_1 \partial_\kappa \omega^{\theta\alpha\beta} \partial^\kappa \omega_{\alpha\beta\theta} + \\
& \frac{2}{3} r_1 \partial^\beta \omega_{\lambda'}^{\alpha\lambda} \partial_\lambda \omega_{\alpha\beta}^{'\alpha} - \frac{8}{3} r_1 \partial^\beta \omega_{\lambda'}^{\lambda\alpha} \partial_\lambda \omega_{\alpha\beta}^{'\alpha} - r_1 \partial_\alpha \omega_{\lambda}^{\alpha} \partial^\lambda \omega_{\theta}^{\theta\kappa} + r_1 \partial_\theta \omega_{\lambda}^{\alpha} \partial^\lambda \omega_{\alpha}^{\theta\kappa}
\end{aligned}$$

$\omega_{1+}^{\#1} \dagger^{\alpha\beta}$	$\omega_{1+}^{\#2} \alpha\beta$	$f_{1+}^{\#1} \alpha\beta$	$\omega_{1-}^{\#1} \alpha$	$\omega_{1-}^{\#2} \alpha$	$f_{1-}^{\#1} \alpha$	$f_{1-}^{\#2} \alpha$
$k^2 r_1 - \frac{t_1}{2}$	$-\frac{t_1}{\sqrt{2}}$	$-\frac{i k t_1}{\sqrt{2}}$	0	0	0	0
$-\frac{t_1}{\sqrt{2}}$	0	0	0	0	0	0
$\frac{i k t_1}{\sqrt{2}}$	0	0	$-\frac{t_1}{2}$	$\frac{t_1}{\sqrt{2}}$	0	$i k t_1$
0	0	0	0	0	0	0
0	0	0	$\frac{t_1}{\sqrt{2}}$	0	0	0
0	0	0	0	0	0	0
0	0	0	$-i k t_1$	0	0	0

$\sigma_{2+}^{\#1} \dagger^{\alpha\beta}$	$\tau_{2+}^{\#1} \alpha\beta$	$\sigma_{2-}^{\#1} \alpha\beta\chi$
$\frac{2}{(1+2k^2)^2t_1}$	$-\frac{2i\sqrt{2}k}{(1+2k^2)^2t_1}$	0
$\frac{2i\sqrt{2}k}{(1+2k^2)^2t_1}$	$\frac{4k^2}{(1+2k^2)^2t_1}$	0
$\sigma_{2-}^{\#1} \dagger^{\alpha\beta\chi}$	0	$\frac{2}{2k^2r_1+t_1}$

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

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

	$\omega_{2+}^{\#1} f_{2+}^{\#1} \alpha\beta$	$\omega_{2-}^{\#1} \alpha\beta\chi$	
$\omega_{2+}^{\#1} \dagger^{\alpha\beta}$	$\frac{t_1}{2}$	$-\frac{i k t_1}{\sqrt{2}}$	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	$k^2 r_1 + \frac{t_1}{2}$

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