



Massive particle	
Pole residue:	$-\frac{1}{r_2} > 0$
Polarisations:	1
Square mass:	$\frac{t_1}{r_2} > 0$
Spin:	0
Parity:	Odd

Unitarity conditions

$r_2 < 0 \ \&\& \ t_1 < 0$

(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	$-\frac{\sqrt{2}}{t_1+k^2 t_1}$	$-\frac{i \sqrt{2} \, k}{t_1+k^2 t_1}$	0	0	0	0
$-\frac{\sqrt{2}}{t_1+k^2 t_1}$	$\frac{1}{(1+k^2)^2 t_1}$	$\frac{i k}{(1+k^2)^2 t_1}$	0	0	0	0
$\frac{i \sqrt{2} \, k}{t_1+k^2 t_1}$	$-\frac{i k}{(1+k^2)^2 t_1}$	$\frac{k^2}{(1+k^2)^2 t_1}$	0	0	0	0
0	0	0	$\frac{6}{(3+4 k^2)^2 t_1}$	$\frac{6 \sqrt{2}}{(3+4 k^2)^2 t_1}$	0	$\frac{12 i k}{(3+4 k^2)^2 t_1}$
0	0	0	0	$\frac{12}{(3+4 k^2)^2 t_1}$	0	$\frac{12 i \sqrt{2} \, k}{(3+4 k^2)^2 t_1}$
0	0	0	0	0	0	0
0	0	0	$-\frac{12 i k}{(3+4 k^2)^2 t_1}$	$-\frac{12 i \sqrt{2} \, k}{(3+4 k^2)^2 t_1}$	0	$\frac{24 k^2}{(3+4 k^2)^2 t_1}$

Lagrangian density

$$\begin{aligned}
 &-\frac{1}{3} t_1 \omega_{\lambda'}^{\alpha'} \omega_{\kappa\alpha}^{\kappa}-t_1 \omega_{\kappa\lambda'}^{\kappa\lambda} \omega_{\lambda'}^{\kappa\lambda} \omega_{\alpha\beta\chi}^{\alpha\beta} \tau_{\alpha\beta}+\omega^{\alpha\beta\chi} \sigma_{\alpha\beta\chi}+ \\
 &\frac{2}{3} r_2 \partial^\beta \omega_{\kappa}^{\theta\alpha} \partial_\theta \omega_{\alpha\beta}^{\kappa}-\frac{1}{3} r_2 \partial_\theta \omega_{\alpha\beta}^{\kappa} \partial_\kappa \omega_{\alpha\beta}^{\kappa} \partial_\theta \omega_{\alpha\beta}^{\kappa}-\frac{2}{3} r_2 \partial_\theta \omega_{\alpha\beta}^{\kappa} \partial_\kappa \omega_{\alpha\beta}^{\kappa} \partial_\theta \omega_{\alpha\beta}^{\kappa}- \\
 &\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} f_{\alpha}^{\theta}-\frac{1}{2} t_1 \partial^\alpha f_{\alpha}^{\theta} \partial_\kappa f_{\alpha}^{\kappa} f_{\alpha}^{\theta}-\frac{1}{2} t_1 \partial^\alpha f_{\alpha}^{\theta} \partial_\kappa f_{\alpha}^{\kappa} f_{\alpha}^{\theta}+ \\
 &\frac{1}{3} t_1 \omega_{\kappa\lambda}^{\lambda} \partial_\kappa f_{\lambda'}^{\kappa} f_{\lambda'}^{\kappa}+\frac{2}{3} t_1 \partial^\alpha f_{\kappa\alpha} \partial_\kappa f_{\lambda'}^{\kappa} f_{\lambda'}^{\kappa}-\frac{1}{3} t_1 \partial_\kappa f_{\lambda}^{\kappa} \partial_\kappa f_{\lambda'}^{\kappa} f_{\lambda'}^{\kappa}+\frac{1}{2} t_1 \omega_{\kappa\alpha}^{\alpha} \partial_\kappa f_{\lambda'}^{\kappa}+ \\
 &\frac{1}{3} t_1 \omega_{\lambda\alpha}^{\alpha} \partial_\kappa f_{\lambda'}^{\kappa} f_{\lambda'}^{\kappa}-\frac{1}{3} t_1 \omega_{\lambda\lambda'}^{\lambda} \partial_\kappa f_{\lambda'}^{\kappa} f_{\lambda'}^{\kappa}+\frac{1}{2} t_1 \partial^\alpha f_{\lambda}^{\kappa} \partial_\kappa f_{\lambda\alpha}^{\kappa} f_{\lambda\alpha}^{\kappa}+\frac{1}{2} t_1 \partial_\kappa f_{\theta}^{\lambda} \partial_\kappa f_{\lambda}^{\theta}+ \\
 &\frac{1}{2} t_1 \partial_\kappa f_{\theta}^{\lambda} \partial_\kappa f_{\lambda}^{\theta} f_{\lambda}^{\theta}-\frac{1}{3} t_1 \partial^\alpha f_{\alpha}^{\kappa} \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^\beta \omega_{\alpha\beta}^{\lambda} \partial_\lambda \omega_{\alpha\beta}^{\lambda'}+\frac{2}{3} r_2 \partial^\beta \omega_{\lambda'}^{\lambda\alpha} \partial_\lambda \omega_{\alpha\beta}^{\lambda'}
 \end{aligned}$$

$\omega_{1+}^{\#1} \dagger^{\alpha\beta}$	$\omega_{1+}^{\#2} \alpha\beta$	$f_{1+}^{\#1} \alpha\beta$	$\omega_{1-}^{\#1} \alpha$	$\omega_{1-}^{\#2} \alpha$	$f_{1-}^{\#1} \alpha$	$f_{1-}^{\#2} \alpha$
$-\frac{t_1}{2}$	$-\frac{t_1}{\sqrt{2}}$	$-\frac{i k t_1}{\sqrt{2}}$	0	0	0	0
$-\frac{t_1}{\sqrt{2}}$	0	0	0	0	0	0
$\frac{i k t_1}{\sqrt{2}}$	0	0	0	0	0	0
0	0	0	$\frac{t_1}{6}$	$\frac{t_1}{3 \sqrt{2}}$	0	$\frac{i k t_1}{3}$
0	0	0	$\frac{t_1}{3 \sqrt{2}}$	$\frac{t_1}{3}$	0	$\frac{1}{3} i \sqrt{2} \, k t_1$
0	0	0	0	0	0	0
0	0	0	$-\frac{1}{3} i k t_1$	$-\frac{1}{3} i \sqrt{2} \, k t_1$	0	$\frac{2 k^2 t_1}{3}$

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

Source constraints	
SO(3) irreps	#
$\tau_{0+}^{\#2} == 0$	1
$\tau_{0+}^{\#1} == 0$	1
$\sigma_{0+}^{\#1} == 0$	1
$\tau_{1-}^{\#2\alpha} + 2 i k \, \sigma_{1-}^{\#1\alpha} == 0$	3
$\tau_{1-}^{\#1\alpha} == 0$	3
$\sigma_{1-}^{\#1\alpha} == \sigma_{1-}^{\#2\alpha}$	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 #:	20

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

$\sigma_{0+}^{\#1} \dagger$	$\tau_{0+}^{\#1} \dagger$	$\tau_{0+}^{\#2} \dagger$	$\sigma_{0-}^{\#1}$
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	$\frac{1}{k^2 r_2-t_1}$

$\omega_{0+}^{\#1} \dagger$	$f_{0+}^{\#1} \dagger$	$f_{0+}^{\#2} \dagger$	$\omega_{0-}^{\#1}$
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	$k^2 r_2-t_1$