



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)

Lagrangian density

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

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

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

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

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

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

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