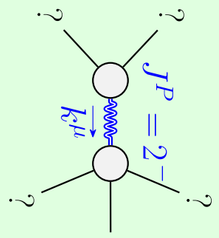

Massive particle	
Pole residue:	$-\frac{1}{r_1} > 0$
Polarisations:	5
Square mass:	$-\frac{t_1}{2 r_1} > 0$
Spin:	
Parity:	Odd

Unitarity conditions

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

(No massless particles)

Lagrangian density

$$
\begin{aligned}
&-t_1\,\omega_{\iota}^{\alpha\prime}\,\omega_{\kappa\alpha}{}^{\kappa} - \tfrac{1}{3} t_1\,\omega_{\iota}^{\kappa\lambda}\,\omega_{\kappa\lambda}{}^{\prime} + \tfrac{1}{3} t_1\,\omega_{\kappa\lambda}{}^{\prime}\,\omega^{\kappa\lambda}{}_{\iota} + \\
&2 r_1\,\partial_{\iota}\omega^{\kappa\lambda}{}_{\kappa}\,\partial^{\prime}\omega_{\lambda}{}^{\alpha}{}_{\alpha} - \tfrac{2}{3} r_1\,\partial^{\beta}\omega^{\theta\alpha}{}_{\kappa}\,\partial_{\theta}\omega_{\alpha\beta}{}^{\kappa} + \tfrac{2}{3} r_2\,\partial^{\beta}\omega^{\theta\alpha}{}_{\kappa}\,\partial_{\theta}\omega_{\alpha\beta}{}^{\kappa} - \\
&\tfrac{2}{3} r_1\,\partial_{\theta}\omega_{\alpha\beta}{}^{\kappa}\,\partial_{\kappa}\omega^{\alpha\beta\theta} - \tfrac{1}{3} r_2\,\partial_{\theta}\omega_{\alpha\beta}{}^{\kappa}\,\partial_{\kappa}\omega^{\alpha\beta\theta} + \tfrac{2}{3} r_1\,\partial_{\theta}\omega_{\alpha\beta}{}^{\kappa}\,\partial_{\kappa}\omega^{\theta\alpha\beta} - \\
&\tfrac{2}{3} r_2\,\partial_{\theta}\omega_{\alpha\beta}{}^{\kappa}\,\partial_{\kappa}\omega^{\theta\alpha\beta} + 2 r_1\,\partial_{\alpha}\omega_{\lambda}{}^{\alpha}{}_{\theta}\,\partial_{\kappa}\omega^{\theta\kappa\lambda} - 2 r_1\,\partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\,\partial_{\kappa}\omega^{\theta\kappa\lambda} + \\
&2 r_1\,\partial_{\alpha}\omega_{\lambda}{}^{\alpha}{}_{\theta}\,\partial_{\kappa}\omega^{\kappa\lambda\theta} - 4 r_1\,\partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\,\partial_{\kappa}\omega^{\kappa\lambda\theta} - \tfrac{1}{3} t_1\,\partial^{\alpha} f_{\theta\kappa}\,\partial^{\kappa} f_{\alpha}{}^{\theta} - \\
&\tfrac{2}{3} t_1\,\partial^{\alpha} f_{\kappa\theta}\,\partial^{\kappa} f_{\alpha}{}^{\theta} - \tfrac{1}{3} t_1\,\partial^{\alpha} f^{\lambda}{}_{\kappa}\,\partial^{\kappa} f_{\alpha\lambda} + t_1\,\omega_{\kappa\alpha}{}^{\alpha}\,\partial^{\kappa} f^{\prime}{}_{\iota} + \\
&t_1\,\omega_{\kappa\lambda}{}^{\lambda}\,\partial^{\kappa} f^{\prime}{}_{\iota} + 2 t_1\,\partial^{\alpha} f_{\kappa\alpha}\,\partial^{\kappa} f^{\prime}{}_{\iota} - t_1\,\partial_{\kappa} f^{\lambda}{}_{\lambda}\,\partial^{\kappa} f^{\prime}{}_{\iota} + \tfrac{1}{3} t_1\,\omega_{\iota\theta\kappa}\,\partial^{\kappa} f^{\prime\theta} + \\
&\tfrac{4}{3} t_1\,\omega_{\iota\kappa\theta}\,\partial^{\kappa} f^{\prime\theta} - \tfrac{1}{3} t_1\,\omega_{\theta\iota\kappa}\,\partial^{\kappa} f^{\prime\theta} + \tfrac{2}{3} t_1\,\omega_{\theta\kappa\iota}\,\partial^{\kappa} f^{\prime\theta} - t_1\,\omega_{\iota\alpha}{}^{\alpha}\,\partial^{\kappa} f^{\prime}{}_{\kappa} - \\
&t_1\,\omega_{\iota\lambda}{}^{\lambda}\,\partial^{\kappa} f^{\prime}{}_{\kappa} + \tfrac{1}{3} t_1\,\partial^{\alpha} f^{\lambda}{}_{\kappa}\,\partial^{\kappa} f_{\lambda\alpha} + \tfrac{1}{3} t_1\,\partial_{\kappa} f_{\theta}{}^{\lambda}\,\partial^{\kappa} f_{\lambda}{}^{\theta} + \\
&\tfrac{2}{3} t_1\,\partial_{\kappa} f^{\lambda}{}_{\theta}\,\partial^{\kappa} f_{\lambda}{}^{\theta} - t_1\,\partial^{\alpha} f^{\lambda}{}_{\alpha}\,\partial^{\kappa} f_{\lambda\kappa} + \tfrac{2}{3} r_1\,\partial_{\kappa}\omega^{\alpha\beta\theta}\,\partial^{\kappa}\omega_{\alpha\beta\theta} + \\
&\tfrac{1}{3} r_2\,\partial_{\kappa}\omega^{\alpha\beta\theta}\,\partial^{\kappa}\omega_{\alpha\beta\theta} - \tfrac{2}{3} r_1\,\partial_{\kappa}\omega^{\theta\alpha\beta}\,\partial^{\kappa}\omega_{\alpha\beta\theta} + \tfrac{2}{3} r_2\,\partial_{\kappa}\omega^{\theta\alpha\beta}\,\partial^{\kappa}\omega_{\alpha\beta\theta} + \\
&\tfrac{2}{3} r_1\,\partial^{\beta}\omega_{\iota}^{\alpha\lambda}\,\partial_{\lambda}\omega_{\alpha\beta}{}^{\prime} - \tfrac{2}{3} r_2\,\partial^{\beta}\omega_{\iota}^{\alpha\lambda}\,\partial_{\lambda}\omega_{\alpha\beta}{}^{\prime} - \tfrac{8}{3} r_1\,\partial^{\beta}\omega_{\iota}^{\lambda\alpha}\,\partial_{\lambda}\omega_{\alpha\beta}{}^{\prime} + \\
&\tfrac{2}{3} r_2\,\partial^{\beta}\omega_{\iota}^{\lambda\alpha}\,\partial_{\lambda}\omega_{\alpha\beta}{}^{\prime} - 2 r_1\,\partial_{\alpha}\omega_{\lambda}{}^{\alpha}{}_{\theta}\,\partial^{\lambda}\omega^{\theta\kappa}{}_{\kappa} + 2 r_1\,\partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\,\partial^{\lambda}\omega^{\theta\kappa}{}_{\kappa}
\end{aligned}
$$

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

	$\sigma_{1^+}^{\#1}{}_{\alpha\beta}$	$\sigma_{1^+}^{\#2}{}_{\alpha\beta}$	$\tau_{1^+}^{\#1}{}_{\alpha\beta}$	$\sigma_{1^-}^{\#1}{}_{\alpha}$	$\sigma_{1^-}^{\#2}{}_{\alpha}$	$\tau_{1^-}^{\#1}{}_{\alpha}$	$\tau_{1^-}^{\#2}{}_{\alpha}$
$\sigma_{1^+}^{\#1}{}^{\dagger\alpha\beta}$	$\frac{6}{(3+2k^2)^2 t_1}$	$-\frac{6\sqrt{2}}{(3+2k^2)^2 t_1}$	$-\frac{6i\sqrt{2}\,k}{(3+2k^2)^2 t_1}$	0	0	0	0
$\sigma_{1^+}^{\#2}{}^{\dagger\alpha\beta}$	$-\frac{6\sqrt{2}}{(3+2k^2)^2 t_1}$	$\frac{12}{(3+2k^2)^2 t_1}$	$\frac{12ik}{(3+2k^2)^2 t_1}$	0	0	0	0
$\tau_{1^+}^{\#1}{}^{\dagger\alpha\beta}$	$\frac{6i\sqrt{2}\,k}{(3+2k^2)^2 t_1}$	$-\frac{12ik}{(3+2k^2)^2 t_1}$	$\frac{12k^2}{(3+2k^2)^2 t_1}$	0	0	0	0
$\sigma_{1^-}^{\#1}{}^{\dagger\alpha}$	0	0	0	0	$\frac{\sqrt{2}}{t_1+2k^2 t_1}$	0	$\frac{2ik}{t_1+2k^2 t_1}$
$\sigma_{1^-}^{\#2}{}^{\dagger\alpha}$	0	0	0	$\frac{\sqrt{2}}{t_1+2k^2 t_1}$	$\frac{2k^2 r_1+t_1}{(t_1+2k^2 t_1)^2}$	0	$\frac{i\sqrt{2}\,k(2k^2 r_1+t_1)}{(t_1+2k^2 t_1)^2}$
$\tau_{1^-}^{\#1}{}^{\dagger\alpha}$	0	0	0	0	0	0	0
$\tau_{1^-}^{\#2}{}^{\dagger\alpha}$	0	0	0	$-\frac{2ik}{t_1+2k^2 t_1}$	$-\frac{i\sqrt{2}\,k(2k^2 r_1+t_1)}{(t_1+2k^2 t_1)^2}$	0	$\frac{2k^2(2k^2 r_1+t_1)}{(t_1+2k^2 t_1)^2}$

	$\omega_{1^+}^{\#1}{}_{\alpha\beta}$	$\omega_{1^+}^{\#2}{}_{\alpha\beta}$	$f_{1^+}^{\#1}{}_{\alpha\beta}$	$\omega_{1^-}^{\#1}{}_{\alpha}$	$\omega_{1^-}^{\#2}{}_{\alpha}$	$f_{1^-}^{\#1}{}_{\alpha}$	$f_{1^-}^{\#2}{}_{\alpha}$
$\omega_{1^+}^{\#1}{}^{\dagger\alpha\beta}$	$\frac{t_1}{6}$	$-\frac{t_1}{3\sqrt{2}}$	$-\frac{ikt_1}{3\sqrt{2}}$	0	0	0	0
$\omega_{1^+}^{\#2}{}^{\dagger\alpha\beta}$	$-\frac{t_1}{3\sqrt{2}}$	$\frac{t_1}{3}$	$\frac{ikt_1}{3}$	0	0	0	0
$f_{1^+}^{\#1}{}^{\dagger\alpha\beta}$	$\frac{ikt_1}{3\sqrt{2}}$	$-\frac{1}{3}ikt_1$	$\frac{k^2 t_1}{3}$	0	0	0	0
$\omega_{1^-}^{\#1}{}^{\dagger\alpha}$	0	0	0	$-k^2 r_1 - \frac{t_1}{2}$	$\frac{t_1}{\sqrt{2}}$	0	ikt_1
$\omega_{1^-}^{\#2}{}^{\dagger\alpha}$	0	0	0	$\frac{t_1}{\sqrt{2}}$	0	0	0
$f_{1^-}^{\#1}{}^{\dagger\alpha}$	0	0	0	0	0	0	0
$f_{1^-}^{\#2}{}^{\dagger\alpha}$	0	0	0	$-ikt_1$	0	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
$\tau_{1^+}^{\#1\alpha\beta} - 2ik\,\sigma_{1^+}^{\#1\alpha\beta} == 0$	3
$2\,\sigma_{1^+}^{\#1\alpha\beta} + \sigma_{1^+}^{\#2\alpha\beta} == 0$	3
$\tau_{2^+}^{\#1\alpha\beta} - 2ik\,\sigma_{2^+}^{\#1\alpha\beta} == 0$	5
Total #:	19

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

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

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

	$\omega_{2^+}^{\#1}{}_{\alpha\beta}$	$f_{2^+}^{\#1}{}_{\alpha\beta}$	$\omega_{2^-}^{\#1}{}_{\alpha\beta\chi}$
$\omega_{2^+}^{\#1}{}^{\dagger\alpha\beta}$	$\frac{t_1}{2}$	$-\frac{ikt_1}{\sqrt{2}}$	0
$f_{2^+}^{\#1}{}^{\dagger\alpha\beta}$	$\frac{ikt_1}{\sqrt{2}}$	$k^2 t_1$	0
$\omega_{2^-}^{\#1}{}^{\dagger\alpha\beta\chi}$	0	0	$k^2 r_1 + \frac{t_1}{2}$