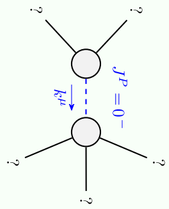
$r_2 < 0 \;\&\&\; t_2 > 0$



Massive particle	
Pole residue:	$-\frac{1}{r_2} > 0$
Polarisations:	1
Square mass:	$-\frac{t_2}{r_2} > 0$
Spin:	0
Parity:	Odd

(No massless particles)

Lagrangian density

$$\frac{2}{3} t_3\, \omega_{\iota}^{\alpha\prime}\, \omega_{\kappa\alpha}{}^{\kappa} + \frac{2}{3} t_2\, \omega_{\iota}^{\kappa\lambda}\, \omega_{\kappa\lambda}{}^{\prime} + \frac{1}{3} t_2\, \omega_{\kappa\lambda}{}^{\prime}\, \omega^{\kappa\lambda}{}_{\iota} + f^{\alpha\beta}\, \tau_{\alpha\beta} + \omega^{\alpha\beta\chi}\, \sigma_{\alpha\beta\chi} +$$
$$2 r_1 \partial_\iota \omega^{\kappa\lambda}{}_{\kappa} \partial^{\prime} \omega_{\lambda}{}^{\alpha}{}_{\alpha} - \frac{2}{3} r_1 \partial^{\beta} \omega^{\theta\alpha}{}_{\kappa} \partial_\theta \omega_{\alpha\beta}{}^{\kappa} + \frac{2}{3} r_2 \partial^{\beta} \omega^{\theta\alpha}{}_{\kappa} \partial_\theta \omega_{\alpha\beta}{}^{\kappa} -$$
$$\frac{2}{3} r_1 \partial_\theta \omega_{\alpha\beta}{}^{\kappa} \partial_\kappa \omega^{\alpha\beta\theta} - \frac{1}{3} r_2 \partial_\theta \omega_{\alpha\beta}{}^{\kappa} \partial_\kappa \omega^{\alpha\beta\theta} + \frac{2}{3} r_1 \partial_\theta \omega_{\alpha\beta}{}^{\kappa} \partial_\kappa \omega^{\theta\alpha\beta} -$$
$$\frac{2}{3} r_2 \partial_\theta \omega_{\alpha\beta}{}^{\kappa} \partial_\kappa \omega^{\theta\alpha\beta} + 2 r_1 \partial_\alpha \omega_{\lambda}{}^{\alpha}{}_{\theta} \partial_\kappa \omega^{\theta\kappa\lambda} - 2 r_1 \partial_\theta \omega_{\lambda}{}^{\alpha}{}_{\alpha} \partial_\kappa \omega^{\theta\kappa\lambda} +$$
$$2 r_1 \partial_\alpha \omega_{\lambda}{}^{\alpha}{}_{\theta} \partial_\kappa \omega^{\kappa\lambda\theta} - 4 r_1 \partial_\theta \omega_{\lambda}{}^{\alpha}{}_{\alpha} \partial_\kappa \omega^{\kappa\lambda\theta} + \frac{1}{6} t_2 \partial^{\alpha} f_{\theta\kappa} \partial^{\kappa} f_{\alpha}{}^{\theta} - \frac{1}{6} t_2 \partial^{\alpha} f_{\kappa\theta} \partial^{\kappa} f_{\alpha}{}^{\theta} +$$
$$\frac{1}{6} t_2 \partial^{\alpha} f^{\lambda}{}_{\kappa} \partial^{\kappa} f_{\alpha\lambda} - \frac{2}{3} t_3\, \omega_{\kappa\alpha}{}^{\alpha} \partial^{\kappa} f^{\prime}{}_{\iota} - \frac{2}{3} t_3\, \omega_{\kappa\lambda}{}^{\lambda} \partial^{\kappa} f^{\prime}{}_{\iota} - \frac{4}{3} t_3 \partial^{\alpha} f_{\kappa\alpha} \partial^{\kappa} f^{\prime}{}_{\iota} +$$
$$\frac{2}{3} t_3 \partial_\kappa f^{\lambda}{}_{\lambda} \partial^{\kappa} f^{\prime}{}_{\iota} + \frac{1}{3} t_2\, \omega_{\iota\theta\kappa} \partial^{\kappa} f^{\prime\iota\theta} - \frac{2}{3} t_2\, \omega_{\iota\kappa\theta} \partial^{\kappa} f^{\prime\iota\theta} - \frac{1}{3} t_2\, \omega_{\theta\iota\kappa} \partial^{\kappa} f^{\prime\iota\theta} +$$
$$\frac{2}{3} t_2\, \omega_{\theta\kappa\iota} \partial^{\kappa} f^{\prime\iota\theta} + \frac{2}{3} t_3\, \omega_{\iota\alpha}{}^{\alpha} \partial^{\kappa} f^{\prime}{}_{\kappa} + \frac{2}{3} t_3\, \omega_{\iota\lambda}{}^{\lambda} \partial^{\kappa} f^{\prime}{}_{\kappa} - \frac{1}{6} t_2 \partial^{\alpha} f^{\lambda}{}_{\kappa} \partial^{\kappa} f_{\lambda\alpha} -$$
$$\frac{1}{6} t_2 \partial_\kappa f_{\theta}{}^{\lambda} \partial^{\kappa} f_{\lambda}{}^{\theta} + \frac{1}{6} t_2 \partial_\kappa f^{\lambda}{}_{\theta} \partial^{\kappa} f_{\lambda}{}^{\theta} + \frac{2}{3} t_3 \partial^{\alpha} f^{\lambda}{}_{\alpha} \partial^{\kappa} f_{\lambda\kappa} + \frac{2}{3} r_1 \partial_\kappa \omega^{\alpha\beta\theta} \partial^{\kappa} \omega_{\alpha\beta\theta} +$$
$$\frac{1}{3} r_2 \partial_\kappa \omega^{\alpha\beta\theta} \partial^{\kappa} \omega_{\alpha\beta\theta} - \frac{2}{3} r_1 \partial_\kappa \omega^{\theta\alpha\beta} \partial^{\kappa} \omega_{\alpha\beta\theta} + \frac{2}{3} r_2 \partial_\kappa \omega^{\theta\alpha\beta} \partial^{\kappa} \omega_{\alpha\beta\theta} +$$
$$\frac{2}{3} r_1 \partial^{\beta} \omega_{\iota}^{\alpha\lambda} \partial_\lambda \omega_{\alpha\beta}{}^{\prime} - \frac{2}{3} r_2 \partial^{\beta} \omega_{\iota}^{\alpha\lambda} \partial_\lambda \omega_{\alpha\beta}{}^{\prime} - \frac{8}{3} r_1 \partial^{\beta} \omega_{\iota}^{\lambda\alpha} \partial_\lambda \omega_{\alpha\beta}{}^{\prime} +$$
$$\frac{2}{3} r_2 \partial^{\beta} \omega_{\iota}^{\lambda\alpha} \partial_\lambda \omega_{\alpha\beta}{}^{\prime} - 2 r_1 \partial_\alpha \omega_{\lambda}{}^{\alpha}{}_{\theta} \partial^{\lambda} \omega^{\theta\kappa}{}_{\kappa} + 2 r_1 \partial_\theta \omega_{\lambda}{}^{\alpha}{}_{\alpha} \partial^{\lambda} \omega^{\theta\kappa}{}_{\kappa}$$

	$\sigma_{1^+}^{\#1}{}_{\alpha\beta}$	$\sigma_{1^+}^{\#2}{}_{\alpha\beta}$	$\tau_{1^+}^{\#1}{}_{\alpha\beta}$	$\sigma_{1^-}^{\#1}{}_{\alpha}$	$\sigma_{1^-}^{\#2}{}_{\alpha}$	$\tau_{1^-}^{\#1}{}_{\alpha}$	$\tau_{1^-}^{\#2}{}_{\alpha}$
$\sigma_{1^+}^{\#1}\,\dagger^{\alpha\beta}$	$\frac{6}{(3+k^2)^2 t_2}$	$\frac{3\sqrt{2}}{(3+k^2)^2 t_2}$	$\frac{3i\sqrt{2}\,k}{(3+k^2)^2 t_2}$	0	0	0	0
$\sigma_{1^+}^{\#2}\,\dagger^{\alpha\beta}$	$\frac{3\sqrt{2}}{(3+k^2)^2 t_2}$	$\frac{3}{(3+k^2)^2 t_2}$	$\frac{3ik}{(3+k^2)^2 t_2}$	0	0	0	0
$\tau_{1^+}^{\#1}\,\dagger^{\alpha\beta}$	$-\frac{3i\sqrt{2}\,k}{(3+k^2)^2 t_2}$	$-\frac{3ik}{(3+k^2)^2 t_2}$	$\frac{3k^2}{(3+k^2)^2 t_2}$	0	0	0	0
$\sigma_{1^-}^{\#1}\,\dagger^{\alpha}$	0	0	0	$-\frac{1}{k^2 r_1}$	$-\frac{\sqrt{2}}{k^2 r_1 + 2k^4 r_1}$	0	$-\frac{2i}{k r_1 + 2k^3 r_1}$
$\sigma_{1^-}^{\#2}\,\dagger^{\alpha}$	0	0	0	$-\frac{\sqrt{2}}{k^2 r_1 + 2k^4 r_1}$	$\frac{3k^2 r_1 - 2t_3}{(k+2k^3)^2 r_1 t_3}$	0	$\frac{i\sqrt{2}\,(3k^2 r_1 - 2t_3)}{k(1+2k^2)^2 r_1 t_3}$
$\tau_{1^-}^{\#1}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$\tau_{1^-}^{\#2}\,\dagger^{\alpha}$	0	0	0	$\frac{2i}{k r_1 + 2k^3 r_1}$	$-\frac{i\sqrt{2}\,(3k^2 r_1 - 2t_3)}{k(1+2k^2)^2 r_1 t_3}$	0	$\frac{6k^2 r_1 - 4t_3}{(1+2k^2)^2 r_1 t_3}$

	$\omega_{1^+}^{\#1}{}_{\alpha\beta}$	$\omega_{1^+}^{\#2}{}_{\alpha\beta}$	$f_{1^+}^{\#1}{}_{\alpha\beta}$	$\omega_{1^-}^{\#1}{}_{\alpha}$	$\omega_{1^-}^{\#2}{}_{\alpha}$	$f_{1^-}^{\#1}{}_{\alpha}$	$f_{1^-}^{\#2}{}_{\alpha}$
$\omega_{1^+}^{\#1}\,\dagger^{\alpha\beta}$	$\frac{2t_2}{3}$	$\frac{\sqrt{2}\,t_2}{3}$	$\frac{1}{3} i \sqrt{2}\, k t_2$	0	0	0	0
$\omega_{1^+}^{\#2}\,\dagger^{\alpha\beta}$	$\frac{\sqrt{2}\,t_2}{3}$	$\frac{t_2}{3}$	$\frac{ikt_2}{3}$	0	0	0	0
$f_{1^+}^{\#1}\,\dagger^{\alpha\beta}$	$-\frac{1}{3} i \sqrt{2}\, k t_2$	$-\frac{1}{3} i k t_2$	$\frac{k^2 t_2}{3}$	0	0	0	0
$\omega_{1^-}^{\#1}\,\dagger^{\alpha}$	0	0	0	$-k^2 r_1 + \frac{2t_3}{3}$	$-\frac{\sqrt{2}\,t_3}{3}$	0	$-\frac{2}{3} i k t_3$
$\omega_{1^-}^{\#2}\,\dagger^{\alpha}$	0	0	0	$-\frac{\sqrt{2}\,t_3}{3}$	$\frac{t_3}{3}$	0	$\frac{1}{3} i \sqrt{2}\, k t_3$
$f_{1^-}^{\#1}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$f_{1^-}^{\#2}\,\dagger^{\alpha}$	0	0	0	$\frac{2ikt_3}{3}$	$-\frac{1}{3} i \sqrt{2}\, k t_3$	0	$\frac{2k^2 t_3}{3}$

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
$\tau_{1^+}^{\#1\,\alpha\beta} + i k\, \sigma_{1^+}^{\#1\,\alpha\beta} == 0$	3
$\sigma_{1^+}^{\#1\,\alpha\beta} == \sigma_{1^+}^{\#2\,\alpha\beta}$	3
$\tau_{2^+}^{\#1\,\alpha\beta} == 0$	5
$\sigma_{2^+}^{\#1\,\alpha\beta} == 0$	5
Total #:	24

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

	$\sigma_{2^+}^{\#1}{}_{\alpha\beta}$	$\tau_{2^+}^{\#1}{}_{\alpha\beta}$	$\sigma_{2^-}^{\#1}{}_{\alpha\beta\chi}$
$\sigma_{2^+}^{\#1}\,\dagger^{\alpha\beta}$	0	0	0
$\tau_{2^+}^{\#1}\,\dagger^{\alpha\beta}$	0	0	0
$\sigma_{2^-}^{\#1}\,\dagger^{\alpha\beta\chi}$	0	0	$\frac{1}{k^2 r_1}$

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

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