Lagrangian density

$$-\frac{1}{3}t_1\,\omega_\iota{}^{\alpha\iota}\,\omega_{\kappa\alpha}{}^\kappa+\frac{2}{3}t_3\,\omega_\iota{}^{\alpha\iota}\,\omega_{\kappa\alpha}{}^\kappa-t_1\,\omega_\iota{}^{\kappa\lambda}\,\omega_{\kappa\lambda}{}^\iota+$$
$$f^{\alpha\beta}\,\tau_{\alpha\beta}+\omega^{\alpha\beta\chi}\,\sigma_{\alpha\beta\chi}+\frac{2}{3}r_2\,\partial_\theta\omega_{\alpha\beta}{}^\kappa\,\partial_\theta\omega_{\alpha\beta}{}^{\kappa}-\frac{1}{3}r_2\,\partial_\theta\omega_{\alpha\beta}{}^\kappa\,\partial_\kappa\omega^{\alpha\beta\theta}-$$
$$\frac{2}{3}r_2\,\partial_\theta\omega_{\alpha\beta}{}^\kappa\,\partial_\kappa\omega^{\theta\alpha\beta}-\frac{1}{2}t_1\,\partial_\theta f_{\theta\kappa}\,\partial^\kappa f_\alpha{}^\theta-\frac{1}{2}t_1\,\partial^\alpha f_{\kappa\theta}\,\partial^\kappa f_{\alpha\lambda}+$$
$$\frac{1}{3}t_1\,\omega_{\kappa\alpha}{}^\alpha\,\partial^\kappa f^\iota{}_\iota-\frac{2}{3}t_3\,\omega_{\kappa\alpha}{}^\alpha\,\partial^\kappa f^\iota{}_\iota+\frac{1}{3}t_1\,\omega_{\kappa\lambda}{}^\lambda\,\partial^\kappa f^\iota{}_\iota-\frac{2}{3}t_3\,\omega_{\kappa\lambda}{}^\lambda\,\partial^\kappa f^\iota{}_\iota+$$
$$\frac{2}{3}t_1\,\partial^\alpha f_{\kappa\alpha}\,\partial^\kappa f^\iota{}_\iota-\frac{4}{3}t_3\,\partial^\alpha f_{\kappa\alpha}\,\partial^\kappa f^\iota{}_\iota-\frac{1}{3}t_1\,\partial_\kappa f^\lambda{}_\lambda\,\partial^\kappa f^\iota{}_\iota+\frac{2}{3}t_3\,\partial_\kappa f^\lambda{}_\lambda\,\partial^\kappa f^\iota{}_\iota+$$
$$2\,t_1\,\omega_{\iota\kappa\theta}\,\partial^\kappa f^{\iota\theta}-\frac{1}{3}t_1\,\omega_{\iota\alpha}{}^\alpha\,\partial^\kappa f^\iota{}_\kappa+\frac{2}{3}t_3\,\omega_{\iota\alpha}{}^\alpha\,\partial^\kappa f^\iota{}_\kappa-\frac{1}{3}t_1\,\omega_{\iota\lambda}{}^\lambda\,\partial^\kappa f^\iota{}_\kappa+$$
$$\frac{2}{3}t_3\,\omega_{\iota\lambda}{}^\lambda\,\partial^\kappa f^\iota{}_\kappa+\frac{1}{2}t_1\,\partial^\alpha f^\lambda{}_\alpha\,\partial^\kappa f_{\lambda\alpha}+\frac{1}{2}t_1\,\partial_\kappa f^\lambda{}_\theta\,\partial^\kappa f_\lambda{}^\theta+\frac{1}{2}t_1\,\partial_\kappa f^\lambda{}_\theta\,\partial^\kappa f_\lambda{}^\theta-$$
$$\frac{1}{3}t_1\,\partial^\alpha f^\lambda{}_\alpha\,\partial^\kappa f_{\lambda\kappa}+\frac{2}{3}t_3\,\partial^\alpha f^\lambda{}_\alpha\,\partial^\kappa f_{\lambda\kappa}+\frac{1}{3}r_2\,\omega_{\kappa}{}^{\alpha\beta\theta}\,\partial^\kappa\omega_{\alpha\beta\theta}+$$
$$\frac{2}{3}r_2\,\partial_\kappa\omega^{\theta\alpha\beta}\,\partial^\kappa\omega_{\alpha\beta\theta}-\frac{2}{3}r_2\,\partial_\iota\omega_{\alpha\beta}{}^{\alpha\lambda}\,\partial_\lambda\omega^{\iota}{}_{\alpha\beta}+\frac{2}{3}r_2\,\partial_\iota\omega^{\lambda\alpha}\,\partial_\lambda\omega_{\alpha\beta}{}^\iota$$

Table: $1^+ / 1^-$ (σ,τ)

	$\sigma_{1^+}^{\#1}\dagger^{\alpha\beta}$	$\sigma_{1^+}^{\#2}\dagger^{\alpha\beta}$	$\tau_{1^+}^{\#1}\dagger^{\alpha\beta}$	$\sigma_{1^-}^{\#1}\dagger^{\alpha}$	$\sigma_{1^-}^{\#2}\dagger^{\alpha}$	$\tau_{1^-}^{\#1}\dagger^{\alpha}$	$\tau_{1^-}^{\#2}\dagger^{\alpha}$
$\tau_{1^-}^{\#2}{}_\alpha$	0	0	0	$\frac{2ikt_1-4ikt_3}{3t_1t_3+6k^2t_1t_3}$	$\frac{i\sqrt2\,k(t_1+4t_3)}{3(1+2k^2)^2t_1t_3}$	0	$\frac{2k^2(t_1+4t_3)}{3(1+2k^2)^2t_1t_3}$
$\tau_{1^-}^{\#1}{}_\alpha$	0	0	0	0	0	t_3	0
$\sigma_{1^-}^{\#2}{}_\alpha$	0	0	0	$-\frac{\sqrt2\,(t_1-2t_3)}{3(1+2k^2)t_1t_3}$	$\frac{t_1+4t_3}{3(1+2k^2)^2t_1t_3}$	0	$\frac{i\sqrt2\,k(t_1+4t_3)}{3(1+2k^2)^2t_1t_3}$
$\sigma_{1^-}^{\#1}{}_\alpha$	0	0	0	$\frac{2(t_1+t_3)}{3t_1t_3}$	$-\frac{\sqrt2\,(t_1-2t_3)}{3(1+2k^2)t_1t_3}$	0	$\frac{2ikt_3-4ik^2t_1t_3}{3t_1t_3+6k^2t_1t_3}$
$\tau_{1^+}^{\#1}{}_{\alpha\beta}$	$-\frac{i\sqrt2\,k}{t_1+k^2t_1}$	$\frac{ik}{(1+k^2)^2t_1}$	$\frac{k^2}{(1+k^2)^2t_1}$	0	0	0	0
$\sigma_{1^+}^{\#2}{}_{\alpha\beta}$	$-\frac{\sqrt2}{t_1+k^2t_1}$	$\frac{1}{(1+k^2)^2t_1}$	$-\frac{ik}{(1+k^2)^2t_1}$	0	0	0	0
$\sigma_{1^+}^{\#1}{}_{\alpha\beta}$	0	$-\frac{\sqrt2}{t_1+k^2t_1}$	$\frac{i\sqrt2\,k}{t_1+k^2t_1}$	0	0	0	0

Table: $1^+ / 1^-$ (f,ω)

	$\omega_{1^+}^{\#1}\dagger^{\alpha\beta}$	$\omega_{1^+}^{\#2}\dagger^{\alpha\beta}$	$f_{1^+}^{\#1}\dagger^{\alpha\beta}$	$\omega_{1^-}^{\#1}\dagger^{\alpha}$	$\omega_{1^-}^{\#2}\dagger^{\alpha}$	$f_{1^-}^{\#1}\dagger^{\alpha}$	$f_{1^-}^{\#2}\dagger^{\alpha}$
$f_{1^-}^{\#2}{}_\alpha$	0	0	0	$\frac{1}{3}ik(t_1-2t_3)$	$\frac{1}{3}i\sqrt2\,k(t_1+t_3)$	0	$\frac{2}{3}k^2(t_1+t_3)$
$f_{1^-}^{\#1}{}_\alpha$	0	0	0	0	0	0	0
$\omega_{1^-}^{\#2}{}_\alpha$	0	0	0	$\frac{t_1-2t_3}{3\sqrt2}$	$\frac{t_1+t_3}{3}$	0	$\frac{1}{3}i\sqrt2\,k(t_1+t_3)$
$\omega_{1^-}^{\#1}{}_\alpha$	0	0	0	$\frac{1}{6}(t_1+4t_3)$	$\frac{t_1-2t_3}{3\sqrt2}$	0	$-\frac{1}{3}ik(t_1-2t_3)$
$f_{1^+}^{\#1}{}_{\alpha\beta}$	$-\frac{ikt_1}{\sqrt2}$	0	0	0	0	0	0
$\omega_{1^+}^{\#2}{}_{\alpha\beta}$	$-\frac{t_1}{\sqrt2}$	0	0	0	0	0	0
$\omega_{1^+}^{\#1}{}_{\alpha\beta}$	$-\frac{t_1}{2}$	$-\frac{t_1}{\sqrt2}$	$\frac{ikt_1}{\sqrt2}$	0	0	0	0

Table: $2^+ / 2^-$ (ω,f)

	$\omega_{2^+}^{\#1}{}_{\alpha\beta}$	$f_{2^+}^{\#1}{}_{\alpha\beta}$	$\omega_{2^-}^{\#1}{}_{\alpha\beta\chi}$
$\omega_{2^+}^{\#1}\dagger^{\alpha\beta}$	$\frac{t_1}{2}$	$-\frac{ikt_1}{\sqrt2}$	0
$f_{2^+}^{\#1}\dagger^{\alpha\beta}$	$\frac{ikt_1}{\sqrt2}$	k^2t_1	0
$\omega_{2^-}^{\#1}\dagger^{\alpha\beta\chi}$	0	0	$\frac{t_1}{2}$

Source constraints

SO(3) irreps	#
$t_{0^+}^{\#2}==0$	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
$\tau_{1^+}^{\#1\,\alpha\beta}+ik\,\sigma_{1^+}^{\#2\,\alpha\beta}==0$	3
$\tau_{2^+}^{\#1\,\alpha\beta}-2ik\,\sigma_{2^+}^{\#1\,\alpha\beta}==0$	5
Total #:	16

Table: $0^+ / 0^-$ (σ,τ)

	$\sigma_{0^+}^{\#1}$	$\tau_{0^+}^{\#1}$	$\tau_{0^+}^{\#2}$	$\sigma_{0^-}^{\#1}$
$\sigma_{0^+}^{\#1}\dagger$	$\frac{1}{(1+2k^2)^2t_3}$	$-\frac{i\sqrt2\,k}{(1+2k^2)^2t_3}$	0	0
$\tau_{0^+}^{\#1}\dagger$	$\frac{i\sqrt2\,k}{(1+2k^2)^2t_3}$	$\frac{2k^2}{(1+2k^2)^2t_3}$	0	0
$\tau_{0^+}^{\#2}\dagger$	0	0	0	0
$\sigma_{0^-}^{\#1}\dagger$	0	0	0	$\frac{1}{k^2r_2-t_1}$

Table: $0^+ / 0^-$ (ω,f)

	$\omega_{0^+}^{\#1}$	$f_{0^+}^{\#1}$	$f_{0^+}^{\#2}$	$\omega_{0^-}^{\#1}$
$\omega_{0^-}^{\#1}\dagger$	0	0	0	$k^2r_2-t_1$
$f_{0^+}^{\#2}\dagger$	0	0	0	0
$f_{0^+}^{\#1}\dagger$	$-i\sqrt2\,kt_3$	$2k^2t_3$	0	0
$\omega_{0^+}^{\#1}\dagger$	t_3	$\sqrt2\,kt_3$	0	0

Table: $2^+ / 2^-$ (σ,τ)

	$\sigma_{2^+}^{\#1}\dagger^{\alpha\beta}$	$\tau_{2^+}^{\#1}\dagger^{\alpha\beta}$	$\sigma_{2^-}^{\#1}\dagger^{\alpha\beta\chi}$
$\sigma_{2^-}^{\#1}{}_{\alpha\beta\chi}$	0	0	$\frac{2}{t_1}$
$\tau_{2^+}^{\#1}{}_{\alpha\beta}$	$\frac{2i\sqrt2\,k}{(1+2k^2)^2t_1}$	$\frac{4k^2}{(1+2k^2)^2t_1}$	0
$\sigma_{2^+}^{\#1}{}_{\alpha\beta}$	$\frac{2}{(1+2k^2)^2t_1}$	$\frac{2i\sqrt2\,k}{(1+2k^2)^2t_1}$	0

Massive particle

$J^P = 0^-$

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)