Lagrangian density

$$\tfrac{2}{3}\,t_3\,\omega_i{}^{\alpha i}\,\omega_{\kappa\alpha}{}^{\kappa} - r_5\,\partial_i\omega^{\kappa\lambda}{}_{\kappa}\,\partial^i\omega_{\lambda\alpha}{}^{\alpha} - \tfrac{2}{3}\,r_1\,\partial^{\beta}\omega_{\lambda}{}^{\theta\alpha}\,\partial_{\theta}\omega_{\alpha\beta}{}^{\kappa} -$$
$$\tfrac{2}{3}\,r_1\,\partial_{\theta}\omega^{\kappa}{}_{\kappa\alpha}{}^{\alpha\beta\theta} + \tfrac{2}{3}\,r_1\,\partial_{\theta}\omega^{\kappa}{}_{\alpha\kappa}\,\partial_{\alpha}\omega_{\theta}{}^{\alpha\beta} - r_5\,\partial_{\alpha}\omega_{\theta}{}^{\theta\alpha\beta} +$$
$$r_5\,\partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\,\partial_{\kappa}\omega^{\theta\kappa\lambda} - r_5\,\partial_{\alpha}\omega^{\theta\alpha\beta}\,\partial_{\kappa}\omega_{\theta}{}^{\kappa\lambda\theta} + 2\,r_5\,\partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\,\partial_{\kappa}\omega^{\kappa\lambda\theta} -$$
$$\tfrac{2}{3}\,t_3\,\omega^{\alpha}{}_{\alpha}\,\partial_{\kappa}f^i - \tfrac{1}{3}\,t_3\,\omega_{\lambda}{}^{\alpha}\,\partial^{\kappa}f^i{}_{\kappa} - \tfrac{4}{3}\,t_3\,\partial^{\alpha f}{}_{\kappa\alpha}\,\partial^{\kappa}f_{\kappa\lambda\theta} + 2\,r_5\,\partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\,\partial_{\kappa}\omega^{\kappa\lambda\theta} -$$
$$\tfrac{2}{3}\,t_3\,\omega_{i\alpha}{}^{\alpha}\,\partial_{\kappa}f^i + \tfrac{2}{3}\,t_3\,\omega^{\lambda}{}_{i\lambda}\,\partial^{\kappa}f^i{}_{\kappa} + \tfrac{2}{3}\,t_3\,\partial_{\kappa}f^{\lambda}{}_{\lambda}\,\partial^{\kappa}f^i +$$
$$\tfrac{2}{3}\,r_1\,\partial_{\kappa}\omega^{\theta\alpha\beta}\,\partial^{\kappa}\omega_{\alpha\beta\theta} - \tfrac{2}{3}\,r_1\,\partial_{\kappa}\omega^{\theta\alpha\beta}\,\partial^{\kappa}\omega_{\lambda\alpha\beta} +$$
$$\tfrac{2}{3}\,r_1\,\partial^{\beta}\omega_i{}^{\lambda\alpha}\,\partial_{\lambda}\omega_{\alpha\beta}{}^i + r_5\,\partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\,\partial^{\lambda}\omega^{\theta k} -$$
$$\tfrac{8}{3}\,r_1\,\partial^{\beta}\omega_i{}^{\lambda\alpha}\,\partial_{\lambda}\omega_{\alpha\beta}{}^i + r_5\,\partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\,\partial^{\lambda}\omega^{\theta k}{}_{\kappa}$$

Added source term:

$$f^{\alpha\beta}\,\tau_{\alpha\beta} + \omega^{\alpha\beta\chi}\,\sigma_{\alpha\beta\chi}$$

Saturated propagator matrix (σ/τ, spin-0 sector):

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

Saturated propagator matrix (σ/τ, spin-2 sector):

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

Saturated propagator matrix (σ/τ, spin-1 sector):

	$\sigma_{1^+}^{\#1}{}_{\alpha\beta}$	$\sigma_{1^+}^{\#2}{}_{\alpha\beta}$	$\tau_{1^+}^{\#1}{}_{\alpha\beta}$	$\sigma_{1^-}^{\#1}{}_{\alpha}$	$\sigma_{1^-}^{\#2}{}_{\alpha}$	$\tau_{1^-}^{\#1}{}_{\alpha}$	$\tau_{1^-}^{\#2}{}_{\alpha}$
$\sigma_{1^+}^{\#1}\dagger^{\alpha\beta}$	$\dfrac{1}{k^2(2r_1+r_5)}$	0	0	0	0	0	0
$\sigma_{1^+}^{\#2}\dagger^{\alpha\beta}$	0	0	0	0	0	0	0
$\tau_{1^+}^{\#1}\dagger^{\alpha\beta}$	0	0	0	0	0	0	0
$\sigma_{1^-}^{\#1}\dagger^{\alpha}$	0	0	0	$\dfrac{1}{k^2(r_1+r_5)}$	$\dfrac{\sqrt{2}}{k^2(1+2k^2)(r_1+r_5)}$	0	$-\dfrac{2i}{k(1+2k^2)(r_1+r_5)}$
$\sigma_{1^-}^{\#2}\dagger^{\alpha}$	0	0	0	$\dfrac{\sqrt{2}}{k^2(1+2k^2)(r_1+r_5)}$	$\dfrac{3k^2(r_1+r_5)+2t_3}{k^2(1+2k^2)^2(r_1+r_5)t_3}$	0	$\dfrac{i\sqrt{2}\,(3k^2(r_1+r_5)+2t_3)}{k(1+2k^2)^2(r_1+r_5)t_3}$
$\tau_{1^-}^{\#1}\dagger^{\alpha}$	0	0	0	0	0	0	0
$\tau_{1^-}^{\#2}\dagger^{\alpha}$	0	0	0	$-\dfrac{2i}{k(1+2k^2)(r_1+r_5)}$	$\dfrac{i\sqrt{2}\,(3k^2(r_1+r_5)+2t_3)}{k(1+2k^2)^2(r_1+r_5)t_3}$	0	$\dfrac{6k^2(r_1+r_5)+4t_3}{(1+2k^2)^2(r_1+r_5)t_3}$

Wave-operator matrix (ω/f, spin-1 sector):

	$\omega_{1^+}^{\#1}{}_{\alpha\beta}$	$\omega_{1^+}^{\#2}{}_{\alpha\beta}$	$f_{1^+}^{\#1}{}_{\alpha\beta}$	$\omega_{1^-}^{\#1}{}_{\alpha}$	$\omega_{1^-}^{\#2}{}_{\alpha}$	$f_{1^-}^{\#1}{}_{\alpha}$	$f_{1^-}^{\#2}{}_{\alpha}$
$\omega_{1^+}^{\#1}\dagger^{\alpha\beta}$	$k^2(2r_1+r_5)$	0	0	0	0	0	0
$\omega_{1^+}^{\#2}\dagger^{\alpha\beta}$	0	0	0	0	0	0	0
$f_{1^+}^{\#1}\dagger^{\alpha\beta}$	0	0	0	0	0	0	0
$\omega_{1^-}^{\#1}\dagger^{\alpha}$	0	0	0	$k^2(r_1+r_5)+\dfrac{2t_3}{3}$	$-\dfrac{\sqrt{2}\,t_3}{3}$	0	$\dfrac{2ikt_3}{3}$
$\omega_{1^-}^{\#2}\dagger^{\alpha}$	0	0	0	$-\dfrac{\sqrt{2}\,t_3}{3}$	$\dfrac{t_3}{3}$	0	$-\dfrac{1}{i}\sqrt{2}\,k t_3$
$f_{1^-}^{\#1}\dagger^{\alpha}$	0	0	0	0	0	0	0
$f_{1^-}^{\#2}\dagger^{\alpha}$	0	0	0	$\dfrac{2ikt_3}{3}$	$\dfrac{1}{i}\sqrt{2}\,k t_3$	0	$\dfrac{2k^2 t_3}{3}$

Wave-operator matrix (ω/f, spin-0 sector):

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

Wave-operator matrix (ω/f, spin-2 sector):

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

Source constraints

SO(3) irreps	Source constraints	#
$\sigma_{0^+}^{\#1}$	$\sigma_{0^+}^{\#2}==0$	1
$\tau_{0^+}^{\#1}$	$\tau_{0^+}^{\#2}==0$	1
$\sigma_{1^+}^{\#1}$	$\tau_{0^+}^{\#1}-2ik\,\sigma_{0^+}^{\#1}==0$	1
$\tau_{1^+}^{\#1}$	$\tau_{1^-}^{\#2\,\alpha}+2ik\,\sigma_{1^-}^{\#2\,\alpha}==0$	3
$\tau_{1^-}^{\#1}$	$\tau_{1^-}^{\#1\,\alpha}==0$	3
$\sigma_{1^-}^{\#2}$	$\sigma_{1^+}^{\#2\,\alpha\beta}==0$	3
$\tau_{1^+}^{\#1}$	$\tau_{1^+}^{\#1\,\alpha\beta}==0$	5
$\sigma_{2^+}^{\#1}$	$\sigma_{2^+}^{\#1\,\alpha\beta}==0$	5
Total #		25

Unitarity conditions

$$r_1 < 0 \;\&\&\; (r_5 < -r_1 \;||\; r_5 > -2\,r_1) \;||\; r_1 > 0 \;\&\&\; -2\,r_1 < r_5 < -r_1$$

(No massive particles)

Quadratic pole

Pole residue: $-\dfrac{1}{r_1\,(r_1+r_5)\,(2\,r_1+r_5)\,p^2} > 0$

Polarisations: 2