Lagrangian density

$$-\tfrac{1}{3} t_1\, \omega_\iota{}^{\alpha\iota}\, \omega_{\kappa\alpha}{}^{\kappa} - t_1\, \omega_\iota{}^{\kappa\lambda}\, \omega_{\kappa\lambda}{}^{\iota} + f^{\alpha\beta}\, \tau_{\alpha\beta} + \omega^{\alpha\beta\chi}\, \sigma_{\alpha\beta\chi} - r_5\, \partial_\iota \omega^{\kappa\lambda}{}_\kappa\, \partial^\iota \omega_\lambda{}^\alpha{}_\alpha -$$

$$\tfrac{2}{3} r_1\, \partial^\beta \omega^{\theta\alpha}{}_\kappa\, \partial_\theta \omega_{\alpha\beta}{}^\kappa - \tfrac{2}{3} r_1\, \partial_\theta \omega_{\alpha\beta}{}^\kappa\, \partial_\kappa \omega^{\alpha\beta\theta} + \tfrac{2}{3} r_1\, \partial_\theta \omega_{\alpha\beta}{}^\kappa\, \partial_\kappa \omega^{\alpha\beta} -$$

$$r_5\, \partial_\alpha \omega_\lambda{}^\alpha{}_\theta\, \partial_\kappa \omega^{\theta\kappa\lambda} + r_5\, \partial_\theta \omega_\lambda{}^\alpha{}_\alpha\, \partial_\kappa \omega^{\theta\kappa\lambda} - r_5\, \partial_\alpha \omega_\lambda{}^\alpha{}_\theta\, \partial_\kappa \omega^{\kappa\lambda\theta} + 2 r_5\, \partial_\theta \omega_\lambda{}^\alpha{}_\alpha\, \partial_\kappa \omega^{\kappa\theta} -$$

$$\tfrac{1}{2} t_1\, \partial^\alpha f_{\theta\kappa}\, \partial^\kappa f_\alpha{}^\theta - \tfrac{1}{2} t_1\, \partial^\alpha f_{\kappa\theta}\, \partial^\kappa f_\alpha{}^\theta - \tfrac{1}{2} t_1\, \partial^\alpha f^\lambda{}_\kappa\, \partial^\kappa f_{\alpha\lambda} + \tfrac{1}{3} t_1\, \omega_{\kappa\alpha}{}^\alpha\, \partial^\kappa f_\iota{}^\iota +$$

$$\tfrac{1}{3} t_1\, \omega_{\kappa\lambda}{}^\lambda\, \partial^\kappa f_\iota{}^\iota + \tfrac{2}{3} t_1\, \partial^\alpha f_{\kappa\alpha}\, \partial^\kappa f_\iota{}^\iota - \tfrac{1}{3} t_1\, \partial_\kappa f^\lambda{}_\lambda\, \partial^\kappa f_\iota{}^\iota + 2 t_1\, \omega_{\iota\kappa\theta}\, \partial^\kappa f^{\iota\theta} -$$

$$\tfrac{1}{3} t_1\, \omega_{\iota\alpha}{}^\alpha\, \partial^\kappa f^\iota{}_\kappa - \tfrac{1}{3} t_1\, \omega_{\iota\lambda}{}^\lambda\, \partial^\kappa f^\iota{}_\kappa + \tfrac{1}{2} t_1\, \partial^\alpha f^\lambda{}_\kappa\, \partial^\kappa f_{\lambda\alpha} + \tfrac{1}{2} t_1\, \partial_\kappa f^\lambda{}_\theta\, \partial^\kappa f_\lambda{}^\theta +$$

$$\tfrac{1}{2} t_1\, \partial_\kappa f^\lambda{}_\theta\, \partial^\kappa f_\lambda{}^\theta - \tfrac{1}{3} t_1\, \partial^\alpha f^\lambda{}_\alpha\, \partial^\kappa f_{\lambda\kappa} + \tfrac{2}{3} r_1\, \partial_\kappa \omega^{\alpha\beta\theta}\, \partial^\kappa \omega_{\alpha\beta\theta} - \tfrac{2}{3} r_1\, \partial_\kappa \omega^{\theta\alpha\beta}\, \partial^\kappa \omega_{\alpha\beta\theta} +$$

$$\tfrac{2}{3} r_1\, \partial^\beta \omega_\iota{}^{\alpha\lambda}\, \partial_\lambda \omega_{\alpha\beta}{}^\iota - \tfrac{8}{3} r_1\, \partial^\beta \omega_\iota{}^{\lambda\alpha}\, \partial_\lambda \omega_{\alpha\beta}{}^\iota + r_5\, \partial_\alpha \omega_\lambda{}^\alpha{}_\theta\, \partial^\lambda \omega^{\theta\kappa}{}_\kappa - r_5\, \partial_\theta \omega_\lambda{}^\alpha{}_\alpha\, \partial^\lambda \omega^{\theta\kappa}{}_\kappa$$
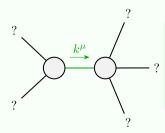
Left large table

	$\sigma_{1^+}^{\#1}{}^{\alpha\beta}$	$\sigma_{1^+}^{\#2}{}^{\alpha\beta}$	$\tau_{1^+}^{\#1}{}^{\alpha\beta}$	$\sigma_{1^-}^{\#1}{}^{\alpha}$	$\sigma_{1^-}^{\#2}{}^{\alpha}$	$\tau_{1^-}^{\#1}{}^{\alpha}$	$\tau_{1^-}^{\#2}{}^{\alpha}$
$\tau_1^{\#2}{}_\alpha$	0	0	0	$-\dfrac{i}{k(1+2k^2)(r_1+r_5)}$	$\dfrac{i(6k^2(r_1+r_5)+t_1)}{\sqrt{2}\,k(1+2k^2)^2(r_1+r_5)t_1}$	0	$\dfrac{6k^2(r_1+r_5)+t_1}{(1+2k^2)^2(r_1+r_5)t_1}$
$\tau_1^{\#1}{}_\alpha$	0	0	0	0	0	0	0
$\sigma_1^{\#2}{}_\alpha$	0	0	0	$\dfrac{1}{\sqrt{2}(k^2+2k^4)(r_1+r_5)}$	$\dfrac{6k^2(r_1+r_5)+t_1}{2(k^2+2k^3)^2(r_1+r_5)t_1}$	0	$-\dfrac{i(6k^2(r_1+r_5)+t_1)}{\sqrt{2}\,k(1+2k^2)^2(r_1+r_5)t_1}$
$\sigma_1^{\#1}{}_\alpha$	0	0	0	$\dfrac{1}{k^2(r_1+r_5)}$	$-\dfrac{1}{\sqrt{2}(k^2+2k^4)(r_1+r_5)}$	0	$\dfrac{i}{k(1+2k^2)(r_1+r_5)}$
$\tau_{1^+}^{\#1}{}_{\alpha\beta}$	$-\dfrac{i\sqrt{2}\,k}{t_1+k^2 t_1}$	$\dfrac{-2ik^3(2r_1+r_5)+ikt_1}{(1+k^2)^2 t_1^2}$	$\dfrac{-2k^4(2r_1+r_5)+k^2 t_1}{(1+k^2)^2 t_1^2}$	0	0	0	0
$\sigma_{1^+}^{\#2}{}_{\alpha\beta}$	$-\dfrac{\sqrt{2}}{t_1+k^2 t_1}$	$-\dfrac{2k^2(2r_1+r_5)+t_1}{(1+k^2)^2 t_1^2}$	$\dfrac{i(2k^3(2r_1+r_5)+kt_1)}{(1+k^2)^2 t_1^2}$	0	0	0	0
$\sigma_{1^+}^{\#1}{}_{\alpha\beta}$	0	$-\dfrac{\sqrt{2}}{t_1+k^2 t_1}$	$\dfrac{i\sqrt{2}\,k}{t_1+k^2 t_1}$	0	0	0	0

Top small matrix 1

	$\sigma_{0^+}^{\#1}$	$\tau_{0^+}^{\#1}$	$\tau_{0^+}^{\#2}$	$\sigma_{0^-}^{\#1}$
$\sigma_{0^-}^{\#1}\dagger$	0	0	0	$-\dfrac{i}{t_1}$
$\tau_{0^+}^{\#2}\dagger$	0	0	0	0
$\tau_{0^+}^{\#1}\dagger$	0	0	0	0
$\sigma_{0^+}^{\#1}\dagger$	0	0	0	0

Top small matrix 2

	$\omega_{0^+}^{\#1}$	$f_{0^+}^{\#1}$	$f_{0^+}^{\#2}$	$\omega_{0^-}^{\#1}$
$\omega_{0^-}^{\#1}\dagger$	0	0	0	$-t_1$
$f_{0^+}^{\#2}\dagger$	0	0	0	0
$f_{0^+}^{\#1}\dagger$	0	0	0	0
$\omega_{0^+}^{\#1}\dagger$	0	0	0	0

Top right matrix

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

Middle right matrix

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

Middle table

	$\omega_{1^+}^{\#1}{}_{\alpha\beta}$	$\omega_{1^+}^{\#2}{}_{\alpha\beta}$	$f_{1^+}^{\#1}{}_{\alpha\beta}$	$\omega_{1^-}^{\#1}{}_{\alpha}$	$\omega_{1^-}^{\#2}{}_{\alpha}$	$f_{1^-}^{\#1}{}_{\alpha}$	$f_{1^-}^{\#2}{}_{\alpha}$
$\omega_{1^+}^{\#1}\dagger^{\alpha\beta}$	$k^2(2r_1+r_5) - \dfrac{t_1}{2}$	$-\dfrac{t_1}{\sqrt{2}}$	$-\dfrac{i k t_1}{\sqrt{2}}$	0	0	0	0
$\omega_{1^+}^{\#2}\dagger^{\alpha\beta}$	$-\dfrac{t_1}{\sqrt{2}}$	0	0	0	0	0	0
$f_{1^+}^{\#1}\dagger^{\alpha\beta}$	$\dfrac{i k t_1}{\sqrt{2}}$	0	0	0	0	0	0
$\omega_{1^-}^{\#1}\dagger^{\alpha}$	0	0	0	$k^2(r_1+r_5)+\dfrac{t_1}{6}$	$\dfrac{t_1}{3\sqrt{2}}$	0	$\dfrac{i k t_1}{3}$
$\omega_{1^-}^{\#2}\dagger^{\alpha}$	0	0	0	$\dfrac{t_1}{3\sqrt{2}}$	$\dfrac{t_1}{3}$	0	$\tfrac{1}{3} i \sqrt{2}\, k t_1$
$f_{1^-}^{\#1}\dagger^{\alpha}$	0	0	0	0	0	0	0
$f_{1^-}^{\#2}\dagger^{\alpha}$	0	0	0	$-\tfrac{1}{3} i k t_1$	$-\tfrac{1}{3} i \sqrt{2}\, k t_1$	0	$\dfrac{2k^2 t_1}{3}$

Source constraints

SO(3) irreps	#
$\sigma_{0^+}^{\#1} == 0$	1
$\tau_{0^+}^{\#1} == 0$	1
$\tau_{0^+}^{\#2} == 0$	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 #:	17

Massive particle

$J^P = 2^-$

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

Quadratic pole

Pole residue:	$-\dfrac{1}{(r_1+r_5) t_1^2} > 0$
Polarisations:	2

$r_1 < 0\ \&\&\ r_5 < -r_1\ \&\&\ t_1 > 0$