

Lagrangian density

$$\frac{2}{3}t_2\omega_{\kappa\lambda}^{\prime}\omega_{\kappa\lambda}^{\prime}+\frac{1}{3}t_2\omega_{\kappa\lambda}^{\prime}\omega_{\kappa\lambda}^{\prime}+\omega_{\kappa\lambda}^{\prime\prime}+\omega_{\kappa\lambda}^{\prime\prime}+f^{\alpha\beta}\tau_{\alpha\beta}+\omega^{\alpha\beta\chi}\sigma_{\alpha\beta\chi}+2r_1\partial_{\lambda}\omega^{\kappa\lambda}_{\kappa}\partial^{\prime}\omega_{\lambda}^{\alpha}-$$
$$\frac{2}{3}r_1\partial^{\beta}\omega_{\kappa}^{\theta\alpha}\partial_{\theta}\omega_{\alpha\beta}^{\kappa}+\frac{2}{3}r_2\partial^{\beta}\omega_{\kappa}^{\theta\alpha}\partial_{\theta}\omega_{\alpha\beta}^{\kappa}-\frac{2}{3}r_1\partial_{\theta}\omega_{\alpha\beta}^{\kappa}\partial_{\kappa}\omega^{\alpha\beta\theta}+\frac{2}{3}r_1\partial_{\theta}\omega_{\alpha\beta}^{\kappa}\partial_{\kappa}\omega^{\theta\alpha\beta}-\frac{2}{3}r_2\partial_{\theta}\omega_{\alpha\beta}^{\kappa}\partial_{\kappa}\omega^{\theta\alpha\beta}-$$
$$2r_1\partial_{\alpha}\omega_{\lambda}^{\alpha}\partial_{\theta}\omega_{\lambda}^{\theta\kappa\lambda}+4r_3\partial_{\alpha}\omega_{\lambda}^{\alpha}\partial_{\kappa}\omega_{\lambda}^{\theta\kappa\lambda}+2r_1\partial_{\theta}\omega_{\lambda}^{\alpha}\partial_{\kappa}\omega_{\lambda}^{\alpha}\partial_{\kappa}\omega_{\lambda}^{\theta\kappa\lambda}-$$
$$4r_3\partial_{\theta}\omega_{\lambda}^{\alpha}\partial_{\kappa}\omega_{\lambda}^{\theta\kappa\lambda}+2r_1\partial_{\alpha}\omega_{\lambda}^{\alpha}\partial_{\kappa}\omega_{\lambda}^{\alpha}\partial_{\theta}\omega_{\lambda}^{\kappa\lambda\theta}-4r_1\partial_{\theta}\omega_{\lambda}^{\alpha}\partial_{\kappa}\omega_{\lambda}^{\alpha}\partial_{\kappa}\omega_{\lambda}^{\theta\kappa\lambda}+$$
$$\frac{1}{6}t_2\partial^{\alpha}f_{\theta\kappa}^{\kappa}\partial^{\kappa}f_{\alpha}^{\theta}-\frac{1}{6}t_2\partial_2\partial^{\alpha}f_{\kappa\theta}\partial^{\kappa}f_{\alpha}^{\theta}+\frac{1}{6}t_2\partial_2\partial^{\alpha}f_{\lambda}^{\theta}\partial^{\kappa}f_{\alpha}^{\theta}+\frac{1}{6}t_2\partial_2\partial^{\alpha}f_{\lambda}^{\theta}\partial^{\kappa}f_{\alpha}^{\theta}+\frac{1}{3}t_2\omega_{\theta\kappa}\partial^{\kappa}f^{i\theta}-$$
$$\frac{2}{3}t_2\omega_{\theta\kappa}\partial^{\kappa}f^{i\theta}-\frac{1}{3}t_2\omega_{\theta\kappa}\partial^{\kappa}f^{i\theta}+\frac{2}{3}t_2\omega_{\theta\kappa}\partial^{\kappa}f^{i\theta}-\frac{1}{6}t_2\partial_2\partial^{\alpha}f_{\lambda}^{\theta}\partial^{\kappa}f_{\alpha}^{\theta}-\frac{1}{6}t_2\partial_2\partial^{\alpha}f_{\lambda}^{\theta}\partial^{\kappa}f_{\alpha}^{\theta}-$$
$$\frac{1}{6}t_2\partial_2\partial^{\alpha}f_{\lambda}^{\theta}\partial^{\kappa}f_{\alpha}^{\theta}+\frac{1}{6}t_2\partial_2\partial^{\alpha}f_{\lambda}^{\theta}\partial^{\kappa}f_{\alpha}^{\theta}+\frac{2}{3}r_1\partial_{\kappa}\omega^{\alpha\beta\theta}\partial^{\kappa}\omega_{\alpha\beta\theta}-\frac{2}{3}r_1\partial_{\kappa}\omega^{\alpha\beta\theta}\partial^{\kappa}\omega_{\alpha\beta\theta}+\frac{2}{3}r_2\partial_{\kappa}\omega^{\theta\alpha\beta}\partial^{\kappa}\omega_{\alpha\beta\theta}+$$
$$\frac{2}{3}r_1\partial^{\beta}\omega_{\lambda}^{\alpha\lambda}\partial_{\lambda}\omega_{\alpha\beta}^{\prime}-\frac{2}{3}r_2\partial^{\beta}\omega_{\lambda}^{\alpha\lambda}\partial_{\lambda}\omega_{\alpha\beta}^{\prime}+\frac{4}{3}r_1\partial^{\beta}\omega_{\lambda}^{\alpha\lambda}\partial_{\lambda}\omega_{\alpha\beta}^{\prime}+$$
$$\frac{2}{3}r_2\partial^{\beta}\omega_{\lambda}^{\alpha\lambda}\partial_{\lambda}\omega_{\alpha\beta}^{\prime}-4r_3\partial^{\beta}\omega_{\lambda}^{\alpha\lambda}\partial_{\lambda}\omega_{\alpha\beta}^{\prime}+2r_1\partial_{\alpha}\omega_{\lambda}^{\alpha}\partial^{\lambda}\omega_{\kappa}^{\theta}-$$
$$4r_3\partial_{\alpha}\omega_{\lambda}^{\alpha}\partial^{\lambda}\omega_{\kappa}^{\theta\kappa}-2r_1\partial_{\theta}\omega_{\lambda}^{\alpha}\partial^{\lambda}\omega_{\kappa}^{\theta\kappa}+4r_3\partial_{\theta}\omega_{\lambda}^{\alpha}\partial^{\lambda}\omega_{\kappa}^{\theta\kappa}$$

$\omega_{1+}^{\#1} \dagger^{\alpha\beta}$	$\omega_{1+}^{\#1} \alpha\beta$	$\omega_{1+}^{\#2}$	$f_{1+}^{\#1} \alpha\beta$	$\omega_{1-}^{\#1} \alpha$	$\omega_{1-}^{\#2} \alpha$	$f_{1-}^{\#1} \alpha$	$f_{1-}^{\#2} \alpha$
$\omega_{1+}^{\#1} \dagger^{\alpha\beta}$	$\frac{2t_2}{3}$	$\frac{\sqrt{2}t_2}{3}$	$\frac{1}{3}i\sqrt{2}kt_2$	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
$f_{1+}^{\#1} \dagger^{\alpha\beta}$	$-\frac{1}{3}i\sqrt{2}kt_2$	$-\frac{1}{3}ikt_2$	$\frac{k^2t_2}{3}$	0	0	0	0
$\omega_{1-}^{\#1} \dagger^{\alpha}$	0	0	0	$-k^2r_1$	0	0	0
$\omega_{1-}^{\#2} \dagger^{\alpha}$	0	0	0	0	0	0	0
$f_{1-}^{\#1} \dagger^{\alpha}$	0	0	0	0	0	0	0
$f_{1-}^{\#2} \dagger^{\alpha}$	0	0	0	0	0	0	0

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

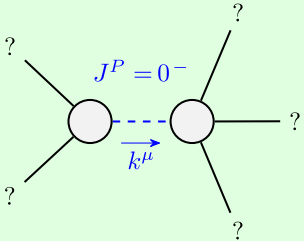
	$\omega_{0+}^{\#1}$	$f_{0+}^{\#1}$	$f_{0+}^{\#2}$	$\omega_{0-}^{\#1}$
$\omega_{0+}^{\#1} \dagger$	$6k^2(-r_1+r_3)$	0	0	0
$f_{0+}^{\#1} \dagger$	0	0	0	0
$f_{0+}^{\#2} \dagger$	0	0	0	0
$\omega_{0-}^{\#1} \dagger$	0	0	0	$k^2r_2+t_2$

Source constraints	
SO(3) irreps	#
$\tau_{0+}^{\#2} == 0$	1
$\tau_{0+}^{\#1} == 0$	1
$\tau_{1-}^{\#2\alpha} == 0$	3
$\tau_{1-}^{\#1\alpha} == 0$	3
$\sigma_{1-}^{\#2\alpha} == 0$	3
$\tau_{1+}^{\#1\alpha\beta} + ik\sigma_{1+}^{\#1\alpha\beta} == 0$	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 #:	27

$\sigma_{0+}^{\#1}$	$\tau_{0+}^{\#1}$	$\tau_{0+}^{\#2}$	$\sigma_{0-}^{\#1}$
$\sigma_{0+}^{\#1} \dagger$	$\frac{1}{6k^2(-r_1+r_3)}$	0	0
$\tau_{0+}^{\#1} \dagger$	0	0	0
$\tau_{0+}^{\#2} \dagger$	0	0	0
$\sigma_{0-}^{\#1} \dagger$	0	0	$\frac{1}{k^2r_2+t_2}$

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

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



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

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

Unitarity conditions

(No massless particles)