Lagrangian density

$$
\begin{aligned}
&-t_1\,\omega_{\prime}^{\alpha\prime}\,\omega_{\kappa\alpha}^{\ \kappa}-\frac{1}{3}t_1\,\omega_{\prime}^{\kappa\lambda\ \prime}\,\omega_{\kappa\lambda}^{\ \prime}+\frac{1}{3}t_1\,\omega_{\kappa\lambda}^{\ \prime}\,\omega^{\kappa\lambda}_{\ \prime}+f^{\alpha\beta}\,\tau_{\alpha\beta}+\omega^{\alpha\beta\chi}\,\sigma_{\alpha\beta\chi}+\\
&2\,r_1\,\partial_{\prime}\omega^{\kappa\lambda}\,\partial^{\prime}\omega_{\lambda}^{\ \alpha}{}_{\kappa}-\frac{2}{3}r_1\,\partial^{\beta}\omega^{\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}+2\,r_1\,\partial_{\alpha}\omega_{\lambda\ \theta}^{\ \alpha}\,\partial_{\kappa}\omega^{\theta\kappa\lambda}-\\
&2\,r_1\,\partial_{\alpha}\omega_{\lambda\ \theta}^{\ \alpha}\,\partial_{\kappa}\omega^{\kappa\lambda\theta}-4\,r_1\,\partial_{\theta}\omega_{\lambda\ \alpha}^{\ \alpha}\,\partial^{\kappa}f_{\prime}^{\ \prime}+\\
&\frac{1}{3}t_1\,\partial^{\alpha}f^{\lambda}_{\ \kappa}\,\partial^{\kappa}f_{\alpha\lambda}+t_1\,\omega_{\kappa\alpha}^{\ \ \alpha}\,\partial^{\kappa}f_{\prime}^{\ \prime}+2\,t_1\,\partial^{\alpha}f_{\kappa\alpha}\,\partial^{\kappa}f_{\prime}^{\ \prime}-\\
&t_1\,\partial_{\kappa}f^{\lambda}_{\ \lambda}\,\partial^{\kappa}f_{\prime}^{\ \prime}+\frac{1}{3}t_1\,\omega_{\prime\theta\kappa}\,\partial^{\kappa}f^{\prime\theta}+\frac{1}{3}t_1\,\omega_{\prime\theta\kappa}\,\partial^{\kappa}f^{\prime\theta}+\\
&\frac{2}{3}t_1\,\omega_{\theta\kappa\prime}\,\partial^{\kappa}f^{\prime\theta}-t_1\,\omega_{\prime\alpha}^{\ \ \alpha}\,\partial^{\kappa}f_{\kappa}^{\ \prime}-t_1\,\omega_{\prime\kappa}^{\ \ \kappa}\,\partial^{\alpha}f_{\alpha}^{\ \prime}+\\
&\frac{1}{3}t_1\,\partial_{\kappa}f_{\ \theta}^{\lambda}\,\partial^{\kappa}f_{\lambda}^{\ \theta}+\frac{2}{3}t_1\,\partial_{\kappa}f^{\lambda}_{\ \ \theta}\,\partial^{\kappa}f_{\lambda}^{\ \theta}-t_1\,\partial^{\alpha}f_{\ \lambda}^{\theta}\,\partial^{\kappa}f_{\alpha}^{\ \lambda}+\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_2\,\partial_{\kappa}\omega^{\theta\alpha\beta}\,\partial^{\kappa}\omega_{\alpha\beta\theta}+\\
&\frac{2}{3}r_1\,\partial^{\beta}\omega_{\prime}^{\ \alpha\lambda}\,\partial_{\lambda}\omega_{\alpha\beta}^{\ \ \prime}-\frac{8}{3}r_1\,\partial^{\beta}\omega_{\prime}^{\ \lambda\alpha}\,\partial_{\lambda}\omega_{\alpha\beta}^{\ \ \prime}+\\
&\frac{2}{3}r_2\,\partial^{\beta}\omega_{\prime}^{\ \alpha\lambda}\,\partial_{\lambda}\omega_{\alpha\beta}^{\ \ \prime}-\frac{2}{3}r_2\,\partial^{\beta}\omega_{\prime}^{\ \lambda\alpha}\,\partial_{\lambda}\omega_{\alpha\beta}^{\ \ \prime}+\\
&\frac{2}{3}r_2\,\partial^{\beta}\omega_{\prime}^{\ \lambda\alpha}\,\partial_{\lambda}\omega_{\alpha\beta}^{\ \ \prime}-2\,r_1\,\partial_{\alpha}\omega_{\lambda\ \theta}^{\ \alpha}\,\partial^{\lambda}\omega^{\theta\kappa}+\\
&2\,r_1\,\partial_{\theta}\omega_{\lambda\ \alpha}^{\ \alpha}\,\partial^{\lambda}\omega^{\theta\kappa}{}_{\kappa}+2\,r_1\,\partial_{\theta}\omega_{\lambda\ \alpha}^{\ \alpha}\,\partial^{\lambda}\omega^{\theta\kappa}{}_{\kappa}
\end{aligned}
$$

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
$\tau_{1^+}^{\#1\,\alpha\beta} - 2\,i\,k\,\sigma_{1^+}^{\#1\,\alpha\beta} == 0$	3
$2\,\sigma_{1^+}^{\#1\,\alpha\beta} + \sigma_{1^+}^{\#2\,\alpha\beta} == 0$	3
$\tau_{2^+}^{\#1\,\alpha\beta} - 2\,i\,k\,\sigma_{2^+}^{\#1\,\alpha\beta} == 0$	5
Total #:	19

$\omega_{2^+}^{\#1}{}_{\alpha\beta}$ | $f_{2^+}^{\#1}{}_{\alpha\beta}$ | $\omega_{2^-}^{\#1}{}_{\alpha\beta\chi}$

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

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

$\omega_{0^+}^{\#1}\,\dagger$	$-t_1$	$i\,\sqrt{2}\;k\,t_1$	0	0
$f_{0^+}^{\#1}\,\dagger$	$-i\,\sqrt{2}\;k\,t_1$	$-2\,k^2\,t_1$	0	0
$f_{0^+}^{\#2}\,\dagger$	0	0	0	0
$\omega_{0^-}^{\#1}\,\dagger$	0	0	0	$k^2\,r_2$

$\sigma_{2^+}^{\#1}{}_{\alpha\beta}$ | $\tau_{2^+}^{\#1}{}_{\alpha\beta}$ | $\sigma_{2^-}^{\#1}{}_{\alpha\beta\chi}$

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

$\tau_{0^+}^{\#2}$ | $\sigma_{0^-}^{\#1}$

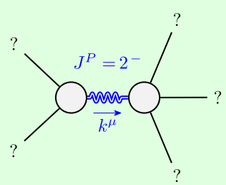
$\sigma_{0^+}^{\#1}\,\dagger$	$\frac{1}{(1+2\,k^2)^2\,t_1}$	$-\frac{i\,\sqrt{2}\;k}{(1+2\,k^2)^2\,t_1}$	0	0
$\tau_{0^+}^{\#1}\,\dagger$	$-\frac{i\,\sqrt{2}\;k}{(1+2\,k^2)^2\,t_1}$	$-\frac{2\,k^2}{(1+2\,k^2)^2\,t_1}$	0	0
$\tau_{0^+}^{\#2}\,\dagger$	0	0	0	0
$\sigma_{0^-}^{\#1}\,\dagger$	0	0	0	$\frac{1}{k^2\,r_2}$

$\sigma_{1^+}^{\#1}{}_{\alpha\beta}$ | $\sigma_{1^+}^{\#2}{}_{\alpha\beta}$ | $\tau_{1^+}^{\#1}{}_{\alpha\beta}$ | $\sigma_{1^-}^{\#1}{}_{\alpha}$ | $\sigma_{1^-}^{\#2}{}_{\alpha}$ | $\tau_{1^-}^{\#1}{}_{\alpha}$ | $\tau_{1^-}^{\#2}{}_{\alpha}$

$\sigma_{1^+}^{\#1\,\alpha\beta}\,\dagger$	$\frac{6}{(3+2\,k^2)^2\,t_1}$	$-\frac{6\,\sqrt{2}}{(3+2\,k^2)^2\,t_1}$	$-\frac{6\,i\,\sqrt{2}\;k}{(3+2\,k^2)^2\,t_1}$	0	0	0	0
$\sigma_{1^+}^{\#2\,\alpha\beta}\,\dagger$	$-\frac{6\,\sqrt{2}}{(3+2\,k^2)^2\,t_1}$	$\frac{12}{(3+2\,k^2)^2\,t_1}$	$-\frac{12\,i\,k}{(3+2\,k^2)^2\,t_1}$	0	0	0	0
$\tau_{1^+}^{\#1\,\alpha\beta}\,\dagger$	$\frac{6\,i\,\sqrt{2}\;k}{(3+2\,k^2)^2\,t_1}$	$-\frac{12\,i\,k}{(3+2\,k^2)^2\,t_1}$	$\frac{12\,k^2}{(3+2\,k^2)^2\,t_1}$	0	0	0	0
$\sigma_{1^-}^{\#1\,\alpha}\,\dagger$	0	0	0	0	$\frac{\sqrt{2}}{t_1+2\,k^2\,t_1}$	0	$\frac{2\,i\,k}{t_1+2\,k^2\,t_1}$
$\sigma_{1^-}^{\#2\,\alpha}\,\dagger$	0	0	0	$\frac{\sqrt{2}}{t_1+2\,k^2\,t_1}$	$\frac{2\,k^2\,r_1+t_1}{(t_1+2\,k^2\,t_1)^2}$	0	$\frac{i\,\sqrt{2}\;k\,(2\,k^2\,r_1+t_1)}{(t_1+2\,k^2\,t_1)^2}$
$\tau_{1^-}^{\#1\,\alpha}\,\dagger$	0	0	0	0	0	0	$\frac{2\,k^2\,(2\,k^2\,r_1+t_1)}{(t_1+2\,k^2\,t_1)^2}$
$\tau_{1^-}^{\#2\,\alpha}\,\dagger$	0	0	0	$-\frac{2\,i\,k}{t_1+2\,k^2\,t_1}$	$-\frac{i\,\sqrt{2}\;k\,(2\,k^2\,r_1+t_1)}{(t_1+2\,k^2\,t_1)^2}$	0	$-\frac{2\,k^2\,(2\,k^2\,r_1+t_1)}{(t_1+2\,k^2\,t_1)^2}$

$\omega_{1^+}^{\#1}{}_{\alpha\beta}$ | $\omega_{1^+}^{\#2}{}_{\alpha\beta}$ | $f_{1^+}^{\#1}{}_{\alpha\beta}$ | $\omega_{1^-}^{\#1}{}_{\alpha}$ | $\omega_{1^-}^{\#2}{}_{\alpha}$ | $f_{1^-}^{\#1}{}_{\alpha}$ | $f_{1^-}^{\#2}{}_{\alpha}$

$\omega_{1^+}^{\#1\,\alpha\beta}\,\dagger$	$\frac{t_1}{6}$	$-\frac{t_1}{3\,\sqrt{2}}$	$-\frac{i\,k\,t_1}{3\,\sqrt{2}}$	0	0	0	0
$\omega_{1^+}^{\#2\,\alpha\beta}\,\dagger$	$-\frac{t_1}{3\,\sqrt{2}}$	$\frac{t_1}{3}$	$\frac{i\,k\,t_1}{3}$	0	0	0	0
$f_{1^+}^{\#1\,\alpha\beta}\,\dagger$	$\frac{i\,k\,t_1}{3\,\sqrt{2}}$	$\frac{i\,k\,t_1}{3}$	$\frac{k^2\,t_1}{3}$	0	0	0	0
$\omega_{1^-}^{\#1\,\alpha}\,\dagger$	0	0	0	$-k^2\,r_1-\frac{t_1}{2}$	$\frac{t_1}{\sqrt{2}}$	0	$-i\,k\,t_1$
$\omega_{1^-}^{\#2\,\alpha}\,\dagger$	0	0	0	$\frac{t_1}{\sqrt{2}}$	0	0	0
$f_{1^-}^{\#1\,\alpha}\,\dagger$	0	0	0	0	0	0	0
$f_{1^-}^{\#2\,\alpha}\,\dagger$	0	0	0	$i\,k\,t_1$	0	0	0



Massive particle

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

(No massless particles)

Unitarity conditions

$r_1 < 0$ && $t_1 > 0$