Lagrangian density

$$\begin{aligned}
&\tfrac{2}{3}\,t_2\,\omega_{i}{}^{\kappa\lambda}\,\omega_{\kappa\lambda}{}^{i} + \tfrac{1}{3}\,t_2\,\omega_{\kappa\lambda}{}^{i}\,\omega_{i}{}^{\kappa\lambda} + \tfrac{2}{3}\,r_2\,\partial^{\beta}\omega_{\kappa}{}^{\theta\alpha}\,\partial_{\theta}\omega_{\alpha\beta}{}^{\kappa} - \\
&\tfrac{1}{3}\,r_2\,\partial_{\theta}\omega_{\alpha\beta}{}^{\kappa}\,\partial_{\kappa}\omega^{\theta\alpha\beta} - \tfrac{2}{3}\,r_2\,\partial_{\theta}\omega_{\alpha\beta}{}^{\kappa}\,\partial_{\kappa}\omega_{\lambda}{}^{\alpha}{}_{\theta}\,\partial_{\kappa}\omega^{\theta\kappa\lambda} - \\
&4\,r_3\,\partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\,\partial_{\kappa}\omega^{\theta\kappa\lambda} + \tfrac{1}{6}\,t_2\,\partial^{\alpha}f_{\theta\kappa}\,\partial^{\kappa}f_{\alpha}{}^{\theta} - \tfrac{1}{6}\,t_2\,\partial^{\alpha}f_{\kappa\theta}\,\partial^{\kappa}f_{\alpha}{}^{\theta} + \\
&\tfrac{1}{6}\,t_2\,\partial^{\alpha}f^{\lambda}{}_{\kappa}\,\partial^{\kappa}f_{\alpha\lambda} + \tfrac{1}{3}\,t_2\,\omega_{i\theta\kappa}\,\partial^{\kappa}f^{i\theta} - \\
&\tfrac{1}{3}\,t_2\,\omega_{\theta i\kappa}\,\partial^{\kappa}f^{i\theta} + \tfrac{2}{3}\,t_2\,\omega_{i\kappa\theta}\,\partial^{\kappa}f^{i\theta} - \\
&\tfrac{1}{6}\,t_2\,\partial_{\kappa}f^{\lambda}{}_{\theta}\,\partial^{\kappa}f_{\lambda}{}^{\theta} + \tfrac{1}{3}\,r_2\,\partial_{\kappa}f^{\lambda}{}_{\theta}\,\partial^{\kappa}f_{\lambda\alpha} + \\
&\tfrac{1}{6}\,t_2\,\partial_{\kappa}f^{\lambda}{}_{\theta}\,\partial^{\kappa}f_{\lambda}{}^{\theta} - \tfrac{2}{3}\,r_2\,\partial^{\beta}\omega_{i}{}^{\lambda}{}_{\theta}\,\partial_{\lambda}\omega_{\alpha\beta}{}^{i} - \\
&\tfrac{2}{3}\,r_2\,\partial_{\kappa}\omega^{\theta\alpha\beta}\,\omega_{\alpha\beta\theta} - \tfrac{2}{3}\,r_2\,\partial_{\lambda}\omega_{\alpha}{}^{\alpha\beta}\,\partial^{\lambda}\omega^{\theta\kappa}{}_{\kappa} + 4\,r_3\,\partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\,\partial^{\lambda}\omega^{\theta\kappa}{}_{\kappa} \\
&4\,r_3\,\partial^{\beta}\omega_{i}{}^{\lambda\alpha}\,\partial_{\lambda}\omega_{\alpha}{}^{i}{}_{\theta} - 4\,r_3\,\partial_{\alpha}\omega_{\lambda}{}^{\alpha}{}_{\theta}\,\partial^{\lambda}\omega^{\theta\kappa}{}_{\kappa} + 4\,r_3\,\partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\,\partial^{\lambda}\omega^{\theta\kappa}{}_{\kappa}
\end{aligned}$$

Added source term: $f^{\alpha\beta}\,\tau_{\alpha\beta} + \omega^{\alpha\beta\chi}\,\sigma_{\alpha\beta\chi}$

Matrix 1:

	$\omega_{1^+}^{\#1\,\alpha\beta}$	$\omega_{1^+}^{\#2\,\alpha\beta}$	$f_{1^+}^{\#1\,\alpha\beta}$	$\omega_{1^-}^{\#1}\dagger^{\alpha}$	$\omega_{1^-}^{\#2}\dagger^{\alpha}$	$f_{1^-}^{\#1}\dagger^{\alpha}$	$f_{1^-}^{\#2}\dagger^{\alpha}$
$f_{1^+}^{\#1}{}_{\alpha}\,f_{1^-}^{\#2}{}_{\alpha}$	0	0	0	0	0	0	0
$\omega_{1^-}^{\#2}{}_{\alpha}\,f_{1^-}^{\#1}{}_{\alpha}$	0	0	0	0	0	0	0
$\omega_{1^-}^{\#1}{}_{\alpha}\,\omega_{1^-}^{\#2}{}_{\alpha}$	0	0	0	0	0	0	0
$\omega_{1^-}^{\#1}{}_{\alpha}$	0	0	0	0	0	0	0
$f_{1^+}^{\#1}{}_{\alpha\beta}$	$\tfrac{1}{3}\,i\,\sqrt{2}\,k\,t_2$	$\tfrac{i\,k\,t_2}{3}$	$\tfrac{k^2\,t_2}{3}$	0	0	0	0
$\omega_{1^+}^{\#2}{}_{\alpha\beta}$	$\tfrac{\sqrt{2}\,t_2}{3}$	$\tfrac{t_2}{3}$	$-\tfrac{1}{3}\,i\,k\,t_2$	0	0	0	0
$\omega_{1^+}^{\#1}{}_{\alpha\beta}$	$\tfrac{2\,t_2}{3}$	$\tfrac{\sqrt{2}\,t_2}{3}$	$-\tfrac{1}{3}\,i\,\sqrt{2}\,k\,t_2$	0	0	0	0

Row labels (bottom): $\omega_{1^+}^{\#1}\dagger^{\alpha\beta}$, $\omega_{1^+}^{\#2}\dagger^{\alpha\beta}$, $f_{1^+}^{\#1}\dagger^{\alpha\beta}$, $\omega_{1^-}^{\#1}\dagger^{\alpha}$, $\omega_{1^-}^{\#2}\dagger^{\alpha}$, $f_{1^-}^{\#1}\dagger^{\alpha}$, $f_{1^-}^{\#2}\dagger^{\alpha}$

Matrix 2:

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

Row labels (bottom): $\sigma_{1^+}^{\#1}\dagger^{\alpha\beta}$, $\sigma_{1^+}^{\#2}\dagger^{\alpha\beta}$, $\tau_{1^+}^{\#1}\dagger^{\alpha\beta}$, $\sigma_{1^-}^{\#1}\dagger^{\alpha}$, $\sigma_{1^-}^{\#2}\dagger^{\alpha}$, $\tau_{1^-}^{\#1}\dagger^{\alpha}$, $\tau_{1^-}^{\#2}\dagger^{\alpha}$

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
$\sigma_{1^-}^{\#1\,\alpha} == 0$	3
$\tau_{1^+}^{\#1\,\alpha\beta} + i\,k\,\sigma_{1^+}^{\#1\,\alpha\beta} == 0$	3
$\sigma_{1^+}^{\#1\,\alpha\beta} == \sigma_{1^+}^{\#2\,\alpha\beta}$	3
$\sigma_{2^-}^{\#1\,\alpha\beta\chi} == 0$	5
$\tau_{2^+}^{\#1\,\alpha\beta} == 0$	5
$\sigma_{2^+}^{\#1\,\alpha\beta} == 0$	5
Total #:	35

Matrix (0+ sector):

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

Matrix (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	0

Matrix (0 source sector):

	$\sigma_{0^+}^{\#1}$	$\tau_{0^+}^{\#1}$	$\tau_{0^+}^{\#2}$	$\sigma_{0^-}^{\#1}$
$\sigma_{0^+}^{\#1}\dagger$	$\tfrac{1}{6\,k^2\,r_3}$	0	0	0
$\tau_{0^+}^{\#1}\dagger$	0	0	0	0
$\tau_{0^+}^{\#2}\dagger$	0	0	0	0
$\sigma_{0^-}^{\#1}\dagger$	0	0	0	$\tfrac{1}{k^2\,r_2 + t_2}$

Matrix (2 source 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	0

Unitarity conditions

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

$J^P = 0^-$, $\vec{k}^{\mu}$

Massive particle

Pole residue:	$-\tfrac{1}{r_2} > 0$
Polarisations:	1
Square mass:	$-\tfrac{t_2}{r_2} > 0$
Spin:	0
Parity:	Odd

(No massless particles)