

Source constraints	#
SO(3) irreps	
$\tau_{0+}^{\#2} == 0$	1
$\tau_{0+}^{\#1} == 0$	1
$\sigma_{0+}^{\#1} == 0$	1
$\tau_{1-}^{\#2\alpha} + 2i k \sigma_{1-}^{\#2\alpha} == 0$	3
$\tau_{1-}^{\#1\alpha} == 0$	3
$\tau_{1+}^{\#1\alpha\beta} + i k \sigma_{1+}^{\#2\alpha\beta} == 0$	3
$\tau_{2+}^{\#1\alpha\beta} - 2i k \sigma_{2+}^{\#1\alpha\beta} == 0$	5
Total #:	17

$\sigma_{0+}^{\#1} + \tau_{0+}^{\#1} + \tau_{0+}^{\#2} + \sigma_{0-}^{\#1}$			
$\sigma_{0+}^{\#1} +$	0	0	0
$\tau_{0+}^{\#1} +$	0	0	0
$\tau_{0+}^{\#2} +$	0	0	0
$\sigma_{0-}^{\#1} +$	0	0	$\frac{1}{k^2 r_2 - t_1}$

$\omega_{1+}^{\#1} + \alpha\beta$	$\omega_{1+}^{\#2} + \alpha\beta$	$f_{1+}^{\#1} + \alpha\beta$	$\omega_{1-}^{\#1} + \alpha$	$\omega_{1-}^{\#2} + \alpha$	$f_{1-}^{\#1} + \alpha$	$f_{1-}^{\#2} + \alpha$
$\omega_{1+}^{\#1} + \alpha\beta$	$k^2 r_5 - \frac{t_1}{2}$	$-\frac{t_1}{\sqrt{2}}$	$-\frac{i k t_1}{\sqrt{2}}$	0	0	0
$\omega_{1+}^{\#2} + \alpha\beta$	$-\frac{t_1}{\sqrt{2}}$	0	0	0	0	0
$f_{1+}^{\#1} + \alpha\beta$	$\frac{i k t_1}{\sqrt{2}}$	0	0	0	0	0
$\omega_{1-}^{\#1} + \alpha$	0	0	$k^2 r_5 + \frac{t_1}{6}$	$\frac{t_1}{3\sqrt{2}}$	0	$\frac{i k t_1}{3}$
$\omega_{1-}^{\#2} + \alpha$	0	0	$\frac{t_1}{3\sqrt{2}}$	$\frac{t_1}{3}$	0	$\frac{1}{3} i \sqrt{2} k t_1$
$f_{1-}^{\#1} + \alpha$	0	0	0	0	0	0
$f_{1-}^{\#2} + \alpha$	0	0	$-\frac{1}{3} i k t_1$	$-\frac{1}{3} i \sqrt{2} k t_1$	0	$\frac{2 k^2 t_1}{3}$

Lagrangian density

$$\begin{aligned}
 &-\frac{1}{3} t_1 \omega_{,\alpha'} \omega_{\kappa\alpha}{}^\kappa - t_1 \omega_{,\kappa\lambda} \omega_{\kappa\lambda}{}^\lambda - r_5 \partial_{\lambda} \omega_{\kappa}{}^{\kappa\lambda} \partial' \omega_{\lambda}{}^{\alpha} + \frac{2}{3} r_2 \partial^{\beta} \omega^{\theta\alpha}{}_{\kappa} \partial_{\theta} \omega_{\alpha\beta}{}^{\kappa} - \\
 &\frac{1}{3} r_2 \partial_{\theta} \omega_{\alpha\beta}{}^{\kappa} \partial_{\kappa} \omega^{\alpha\beta\theta} - \frac{2}{3} r_2 \partial_{\theta} \omega_{\alpha\beta}{}^{\kappa} \partial_{\kappa} \omega^{\theta\alpha\beta} - r_5 \partial_{\alpha} \omega_{\lambda}{}^{\alpha} \partial_{\theta} \partial_{\kappa} \omega^{\theta\kappa\lambda} + \\
 &r_5 \partial_{\theta} \omega_{\lambda}{}^{\alpha} \partial_{\kappa} \omega^{\theta\kappa\lambda} - r_5 \partial_{\alpha} \omega_{\lambda}{}^{\alpha} \partial_{\theta} \partial_{\kappa} \omega^{\kappa\lambda\theta} + 2 r_5 \partial_{\theta} \omega_{\lambda}{}^{\alpha} \partial_{\kappa} \omega^{\kappa\lambda\theta} - \\
 &\frac{1}{2} t_1 \partial^{\alpha} f_{\theta\kappa} \partial^{\kappa} f_{\alpha}{}^{\theta} - \frac{1}{2} t_1 \partial^{\alpha} f_{\kappa\theta} \partial^{\kappa} f_{\alpha}{}^{\theta} - \frac{1}{2} t_1 \partial^{\alpha} f_{\lambda}{}^{\kappa} \partial^{\kappa} f_{\alpha}{}^{\lambda} + \\
 &\frac{1}{3} t_1 \omega_{\kappa\alpha}{}^{\alpha} \partial^{\kappa} f'_{,\lambda} + \frac{1}{3} t_1 \omega_{\kappa\lambda}{}^{\lambda} \partial^{\kappa} f'_{,\lambda} + \frac{2}{3} t_1 \partial^{\alpha} f_{\kappa\alpha}{}^{\kappa} \partial^{\kappa} f'_{,\lambda} - \frac{1}{3} t_1 \partial_{\kappa} f_{\lambda}{}^{\lambda} \partial^{\kappa} f'_{,\lambda} + \\
 &2 t_1 \omega_{\kappa\theta} \partial^{\kappa} f'^{\theta} - \frac{1}{3} t_1 \omega_{\lambda\alpha}{}^{\alpha} \partial^{\kappa} f'_{\kappa} - \frac{1}{3} t_1 \omega_{\lambda\lambda}{}^{\lambda} \partial^{\kappa} f'_{\kappa} + \frac{1}{2} t_1 \partial^{\alpha} f_{\lambda}{}^{\lambda} \partial^{\kappa} f_{\alpha\kappa}{}^{\kappa} + \\
 &\frac{1}{2} t_1 \partial_{\kappa} f_{\theta}{}^{\lambda} \partial^{\kappa} f_{\lambda}{}^{\theta} + \frac{1}{2} t_1 \partial_{\kappa} f_{\lambda}{}^{\theta} \partial^{\kappa} f_{\theta}{}^{\lambda} - \frac{1}{3} t_1 \partial^{\alpha} f_{\lambda}{}^{\alpha} \partial^{\kappa} f_{\lambda\kappa}{}^{\kappa} + \\
 &\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_2 \partial^{\beta} \omega_{,\lambda}{}^{\alpha\lambda} \partial_{\lambda} \omega_{\alpha\beta}{}^{\alpha} + \\
 &\frac{2}{3} r_2 \partial^{\beta} \omega_{,\lambda}{}^{\alpha\alpha} \partial_{\lambda} \omega_{\alpha\beta}{}^{\alpha} + r_5 \partial_{\alpha} \omega_{\lambda}{}^{\alpha} \partial^{\lambda} \omega^{\theta\kappa}{}_{\kappa} - r_5 \partial_{\theta} \omega_{\lambda}{}^{\alpha} \partial^{\lambda} \omega^{\theta\kappa}{}_{\kappa}
 \end{aligned}$$

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

$\sigma_{1+}^{\#1} + \alpha\beta$	$\sigma_{1+}^{\#2} + \alpha\beta$	$\tau_{1+}^{\#1} + \alpha\beta$	$\sigma_{1-}^{\#1} + \alpha$	$\sigma_{1-}^{\#2} + \alpha$	$\tau_{1-}^{\#1} + \alpha$	$\tau_{1-}^{\#2} + \alpha$
$\sigma_{1+}^{\#1} + \alpha\beta$	0	$-\frac{\sqrt{2}}{t_1 + k^2 t_1}$	$-\frac{i \sqrt{2} k}{t_1 + k^2 t_1}$	0	0	0
$\sigma_{1+}^{\#2} + \alpha\beta$	$-\frac{\sqrt{2}}{t_1 + k^2 t_1}$	$\frac{-2 k^2 r_5 + t_1}{(1 + k^2)^2 t_1^2}$	$-\frac{i (2 k^3 r_5 - k t_1)}{(1 + k^2)^2 t_1^2}$	0	0	0
$\tau_{1+}^{\#1} + \alpha\beta$	$\frac{i \sqrt{2} k}{t_1 + k^2 t_1}$	$\frac{i (2 k^3 r_5 - k t_1)}{(1 + k^2)^2 t_1^2}$	$\frac{-2 k^4 r_5 + k^2 t_1}{(1 + k^2)^2 t_1^2}$	0	0	0
$\sigma_{1-}^{\#1} + \alpha$	0	0	0	$\frac{1}{k^2 r_5}$	0	$-\frac{i}{k r_5 + 2 k^3 r_5}$
$\sigma_{1-}^{\#2} + \alpha$	0	0	$-\frac{1}{\sqrt{2} (k^2 r_5 + 2 k^4 r_5)}$	$\frac{6 k^2 r_5 + t_1}{2 (k + 2 k^3)^2 r_5 t_1}$	0	$\frac{i (6 k^2 r_5 + t_1)}{\sqrt{2} k (1 + 2 k^2)^2 r_5 t_1}$
$\tau_{1-}^{\#1} + \alpha$	0	0	0	0	0	0
$\tau_{1-}^{\#2} + \alpha$	0	0	0	0	0	$\frac{6 k^2 r_5 + t_1}{(1 + 2 k^2)^2 r_5 t_1}$

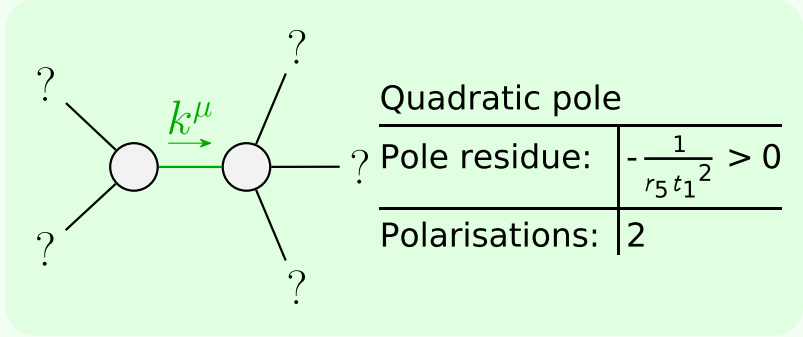
$\omega_{0+}^{\#1} + f_{0+}^{\#1} + f_{0+}^{\#2} + \omega_{0-}^{\#1}$			
$\omega_{0+}^{\#1} +$	0	0	0
$f_{0+}^{\#1} +$	0	0	0
$f_{0+}^{\#2} +$	0	0	0
$\omega_{0-}^{\#1} +$	0	0	$k^2 r_2 - t_1$

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

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

Unitarity conditions

$$r_2 < 0 \ \&\& \ r_5 < 0 \ \&\& \ t_1 < 0$$



Quadratic pole

Pole residue:	$-\frac{1}{r_5 t_1^2} > 0$
Polarisations:	2

Massive particle

Pole residue:	$-\frac{1}{r_2} > 0$
Polarisations:	1
Square mass:	$\frac{t_1}{r_2} > 0$
Spin:	0
Parity:	Odd

