Source constraints

SO(3) irreps	#
$\tau^{\#2}_{0^+} == 0$	1
$\tau^{\#1}_{0^+} == 0$	1
$\tau^{\#2}_{1^-}{}^{\alpha} + 2 i k\, \sigma^{\#2}_{1^-}{}^{\alpha} == 0$	3
$\tau^{\#1}_{1^-}{}^{\alpha} == 0$	3
$\tau^{\#1}_{1^+}{}^{\alpha\beta} + i k\, \sigma^{\#2}_{1^+}{}^{\alpha\beta} == 0$	3
$\tau^{\#1}_{2^+}{}^{\alpha\beta} - 2 i k\, \sigma^{\#1}_{2^+}{}^{\alpha\beta} == 0$	5
Total #:	16

	$\omega^{\#1}_{0^+}$	$f^{\#1}_{0^+}$	$f^{\#2}_{0^+}$	$\omega^{\#1}_{0^-}$
$\omega^{\#1}_{0^+}\dagger$	$6 k^2 r_3$	0	0	0
$f^{\#1}_{0^+}\dagger$	0	0	0	0
$f^{\#2}_{0^+}\dagger$	0	0	0	0
$\omega^{\#1}_{0^-}\dagger$	0	0	0	$k^2 r_2 - t_1$

	$\sigma^{\#1}_{0^+}$	$\tau^{\#1}_{0^+}$	$\tau^{\#2}_{0^+}$	$\sigma^{\#1}_{0^-}$
$\sigma^{\#1}_{0^+}\dagger$	$\frac{1}{6 k^2 r_3}$	0	0	0
$\tau^{\#1}_{0^+}\dagger$	0	0	0	0
$\tau^{\#2}_{0^+}\dagger$	0	0	0	0
$\sigma^{\#1}_{0^-}\dagger$	0	0	0	$\frac{1}{k^2 r_2 - t_1}$

	$\omega^{\#1}_{2^+\,\alpha\beta}$	$f^{\#1}_{2^+\,\alpha\beta}$	$\omega^{\#1}_{2^-\,\alpha\beta\chi}$
$\omega^{\#1}_{2^+}\dagger^{\alpha\beta}$	$\frac{t_1}{2}$	$-\frac{i k t_1}{\sqrt{2}}$	0
$f^{\#1}_{2^+}\dagger^{\alpha\beta}$	$\frac{i k t_1}{\sqrt{2}}$	$k^2 t_1$	0
$\omega^{\#1}_{2^-}\dagger^{\alpha\beta\chi}$	0	0	$\frac{t_1}{2}$

	$\sigma^{\#1}_{2^+\,\alpha\beta}$	$\tau^{\#1}_{2^+\,\alpha\beta}$	$\sigma^{\#1}_{2^-\,\alpha\beta\chi}$
$\sigma^{\#1}_{2^+}\dagger^{\alpha\beta}$	$\frac{2}{(1+2k^2)^2 t_1}$	$-\frac{2 i \sqrt{2} k}{(1+2k^2)^2 t_1}$	0
$\tau^{\#1}_{2^+}\dagger^{\alpha\beta}$	$\frac{2 i \sqrt{2} k}{(1+2k^2)^2 t_1}$	$\frac{4 k^2}{(1+2k^2)^2 t_1}$	0
$\sigma^{\#1}_{2^-}\dagger^{\alpha\beta\chi}$	0	0	$\frac{2}{t_1}$

Lagrangian density

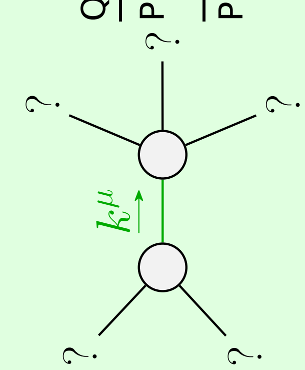
$$\begin{aligned}
&-\tfrac{1}{3} t_1\, \omega_{\iota}{}^{\alpha\iota}\, \omega_{\kappa\alpha}{}^{\kappa} - t_1\, \omega_{\iota}{}^{\kappa\lambda}\, \omega_{\kappa\lambda}{}^{\iota} - 2 r_3\, \partial_{\iota}\omega^{\kappa\lambda}{}_{\kappa}\, \partial^{\iota}\omega_{\lambda}{}^{\alpha}{}_{\alpha} - \\
&r_5\, \partial_{\iota}\omega^{\kappa\lambda}{}_{\kappa}\, \partial^{\iota}\omega_{\lambda}{}^{\alpha}{}_{\alpha} + \tfrac{2}{3} r_2\, \partial^{\beta}\omega^{\theta\alpha}{}_{\kappa}\, \partial_{\theta}\omega_{\alpha\beta}{}^{\kappa} - \tfrac{1}{3} r_2\, \partial_{\theta}\omega_{\alpha\beta}{}^{\kappa}\, \partial_{\kappa}\omega^{\alpha\beta\theta} - \\
&\tfrac{2}{3} r_2\, \partial_{\theta}\omega_{\alpha\beta}{}^{\kappa}\, \partial_{\kappa}\omega^{\theta\alpha\beta} + 2 r_3\, \partial_{\alpha}\omega_{\lambda}{}^{\alpha}{}_{\theta}\, \partial_{\kappa}\omega^{\theta\kappa\lambda} - r_5\, \partial_{\alpha}\omega_{\lambda}{}^{\alpha}{}_{\theta}\, \partial_{\kappa}\omega^{\theta\kappa\lambda} - \\
&2 r_3\, \partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\, \partial_{\kappa}\omega^{\theta\kappa\lambda} + r_5\, \partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\, \partial_{\kappa}\omega^{\theta\kappa\lambda} - 2 r_3\, \partial_{\alpha}\omega_{\lambda}{}^{\alpha}{}_{\theta}\, \partial_{\kappa}\omega^{\kappa\lambda\theta} - \\
&r_5\, \partial_{\alpha}\omega_{\lambda}{}^{\alpha}{}_{\theta}\, \partial_{\kappa}\omega^{\kappa\lambda\theta} + 4 r_3\, \partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\, \partial_{\kappa}\omega^{\kappa\lambda\theta} + 2 r_5\, \partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\, \partial_{\kappa}\omega^{\kappa\lambda\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_{\theta}{}^{\lambda}\, \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{1}{3} r_2\, \partial_{\kappa}\omega^{\alpha\beta\theta}\, \partial^{\kappa}\omega_{\alpha\beta\theta} + \tfrac{2}{3} r_2\, \partial_{\kappa}\omega^{\theta\alpha\beta}\, \partial^{\kappa}\omega_{\alpha\beta\theta} - \tfrac{2}{3} r_2\, \partial^{\beta}\omega_{\iota}{}^{\alpha\lambda}\, \partial_{\lambda}\omega_{\alpha\beta}{}^{\iota} + \\
&\tfrac{2}{3} r_2\, \partial^{\beta}\omega_{\iota}{}^{\lambda\alpha}\, \partial_{\lambda}\omega_{\alpha\beta}{}^{\iota} - 4 r_3\, \partial^{\beta}\omega_{\iota}{}^{\lambda\alpha}\, \partial_{\lambda}\omega_{\alpha\beta}{}^{\iota} - 2 r_3\, \partial_{\alpha}\omega_{\lambda}{}^{\alpha}{}_{\theta}\, \partial^{\lambda}\omega^{\theta\kappa}{}_{\kappa} + \\
&r_5\, \partial_{\alpha}\omega_{\lambda}{}^{\alpha}{}_{\theta}\, \partial^{\lambda}\omega^{\theta\kappa}{}_{\kappa} + 2 r_3\, \partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\, \partial^{\lambda}\omega^{\theta\kappa}{}_{\kappa} - r_5\, \partial_{\theta}\omega_{\lambda}{}^{\alpha}{}_{\alpha}\, \partial^{\lambda}\omega^{\theta\kappa}{}_{\kappa}
\end{aligned}$$

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

	$\omega^{\#1}_{1^+\,\alpha\beta}$	$\omega^{\#2}_{1^+\,\alpha\beta}$	$f^{\#1}_{1^+\,\alpha\beta}$	$\omega^{\#1}_{1^-\,\alpha}$	$\omega^{\#2}_{1^-\,\alpha}$	$f^{\#1}_{1^-\,\alpha}$	$f^{\#2}_{1^-\,\alpha}$
$\omega^{\#1}_{1^+}\dagger^{\alpha\beta}$	$k^2(2 r_3 + r_5) - \frac{t_1}{2}$	$-\frac{t_1}{\sqrt{2}}$	$-\frac{i k t_1}{\sqrt{2}}$	0	0	0	0
$\omega^{\#2}_{1^+}\dagger^{\alpha\beta}$	$-\frac{t_1}{\sqrt{2}}$	0	0	0	0	0	0
$f^{\#1}_{1^+}\dagger^{\alpha\beta}$	$\frac{i k t_1}{\sqrt{2}}$	0	0	0	0	0	0
$\omega^{\#1}_{1^-}\dagger^{\alpha}$	0	0	0	$k^2(2 r_3 + r_5) + \frac{t_1}{6}$	$\frac{t_1}{3\sqrt{2}}$	0	$\frac{i k t_1}{3}$
$\omega^{\#2}_{1^-}\dagger^{\alpha}$	0	0	0	$\frac{t_1}{3\sqrt{2}}$	$\frac{t_1}{3}$	0	$\frac{1}{3} i \sqrt{2}\, k t_1$
$f^{\#1}_{1^-}\dagger^{\alpha}$	0	0	0	0	0	0	0
$f^{\#2}_{1^-}\dagger^{\alpha}$	0	0	0	$-\frac{1}{3} i k t_1$	$-\frac{1}{3} i \sqrt{2}\, k t_1$	0	$\frac{2 k^2 t_1}{3}$

Unitarity conditions

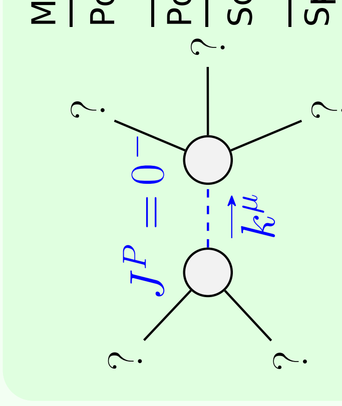
$r_2 < 0$ && $r_5 < -2 r_3$ && $t_1 < 0$



Quadratic pole

Pole residue:	$-\frac{1}{(2 r_3 + r_5) t_1^2} > 0$
Polarisations:	2

	$\sigma^{\#1}_{1^+\,\alpha\beta}$	$\sigma^{\#2}_{1^+\,\alpha\beta}$	$\tau^{\#1}_{1^+\,\alpha\beta}$	$\sigma^{\#1}_{1^-\,\alpha}$	$\sigma^{\#2}_{1^-\,\alpha}$	$\tau^{\#1}_{1^-\,\alpha}$	$\tau^{\#2}_{1^-\,\alpha}$
$\sigma^{\#1}_{1^+}\dagger^{\alpha\beta}$	0	$-\frac{\sqrt{2}}{t_1 + k^2 t_1}$	$-\frac{i \sqrt{2} k}{t_1 + k^2 t_1}$	0	0	0	0
$\sigma^{\#2}_{1^+}\dagger^{\alpha\beta}$	$-\frac{\sqrt{2}}{t_1 + k^2 t_1}$	$\frac{-2 k^2 (2 r_3 + r_5) + t_1}{(1+k^2)^2 t_1^2}$	$\frac{-2 i k^3 (2 r_3 + r_5) + i k t_1}{(1+k^2)^2 t_1^2}$	0	0	0	0
$\tau^{\#1}_{1^+}\dagger^{\alpha\beta}$	$\frac{i \sqrt{2} k}{t_1 + k^2 t_1}$	$\frac{i (2 k^3 (2 r_3 + r_5) - k t_1)}{(1+k^2)^2 t_1^2}$	$\frac{-2 k^4 (2 r_3 + r_5) + k^2 t_1}{(1+k^2)^2 t_1^2}$	0	0	0	0
$\sigma^{\#1}_{1^-}\dagger^{\alpha}$	0	0	0	$\frac{1}{k^2 (2 r_3 + r_5)}$	$-\frac{1}{\sqrt{2} (k^2 + 2 k^4)(2 r_3 + r_5)}$	0	$-\frac{i}{k (1 + 2 k^2)(2 r_3 + r_5)}$
$\sigma^{\#2}_{1^-}\dagger^{\alpha}$	0	0	0	$-\frac{1}{\sqrt{2} (k^2 + 2 k^4)(2 r_3 + r_5)}$	$\frac{6 k^2 (2 r_3 + r_5) + t_1}{2 (k + 2 k^3)^2 (2 r_3 + r_5) t_1}$	0	$\frac{i (6 k^2 (2 r_3 + r_5) + t_1)}{\sqrt{2}\, k (1 + 2 k^2)^2 (2 r_3 + r_5) t_1}$
$\tau^{\#1}_{1^-}\dagger^{\alpha}$	0	0	0	0	0	0	0
$\tau^{\#2}_{1^-}\dagger^{\alpha}$	0	0	0	$\frac{i}{k (1 + 2 k^2)(2 r_3 + r_5)}$	$-\frac{i (6 k^2 (2 r_3 + r_5) + t_1)}{\sqrt{2}\, k (1 + 2 k^2)^2 (2 r_3 + r_5) t_1}$	0	$\frac{6 k^2 (2 r_3 + r_5) + t_1}{(1 + 2 k^2)^2 (2 r_3 + r_5) t_1}$



Massive particle

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