Source constraints

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

σ_{0^+} / τ_{0^+} block

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

σ_{2^-} / τ_{2^+} / σ_{2^+} block

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

ω_{0^+} / f_{0^+} block

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

Large σ/τ matrix (left)

	$\sigma_{1^+}^{\#1\,\alpha\beta}\dagger$	$\sigma_{1^+}^{\#2\,\alpha\beta}\dagger$	$\tau_{1^+}^{\#1\,\alpha\beta}\dagger$	$\sigma_{1^-}^{\#1\,\alpha}\dagger$	$\sigma_{1^-}^{\#2\,\alpha}\dagger$	$\tau_{1^-}^{\#1\,\alpha}\dagger$	$\tau_{1^-}^{\#2\,\alpha}\dagger$
$\tau_{1^-}^{\#2\,\alpha}$	0	0	0	$\dfrac{2\,i\,k}{t_1+2k^2 t_1}$	$-\dfrac{i\sqrt{2}\,k(2k^2(r_1+r_5)+t_1)}{(t_1+2k^2 t_1)^2}$	0	$-\dfrac{4k^4(r_1+r_5)+2k^2 t_1}{(t_1+2k^2 t_1)^2}$
$\tau_{1^-}^{\#1\,\alpha}$	0	0	0	0	0	0	0
$\sigma_{1^-}^{\#2\,\alpha}$	0	0	0	$\dfrac{\sqrt{2}}{t_1+2k^2 t_1}$	$-\dfrac{2k^2(r_1+r_5)+t_1}{(t_1+2k^2 t_1)^2}$	0	$\dfrac{i\sqrt{2}\,k(2k^2(r_1+r_5)+t_1)}{(t_1+2k^2 t_1)^2}$
$\sigma_{1^-}^{\#1\,\alpha}$	0	0	0	0	$\dfrac{\sqrt{2}}{t_1+2k^2 t_1}$	0	$-\dfrac{2\,i\,k}{t_1+2k^2 t_1}$
$\tau_{1^+}^{\#1\,\alpha\beta}$	$\dfrac{i}{\sqrt{2}(k+k^3)(2r_1+r_5)}$	$\dfrac{i(6k^2(2(r_1+r_5)+t_1)}{2k(1+k^2)^2(2(r_1+r_5)t_1}$	$\dfrac{6k^2(2(r_1+r_5)+t_1)}{2(1+k^2)^2(2(r_1+r_5)t_1}$	0	0	0	0
$\sigma_{1^+}^{\#2\,\alpha\beta}$	$\dfrac{1}{\sqrt{2}(k^2+k^4)(2r_1+r_5)}$	$\dfrac{6k^2(2(r_1+r_5)+t_1)}{2(k+k^3)^2(2(r_1+r_5)t_1}$	$\dfrac{i(6k^2(2(r_1+r_5)+t_1)}{2k(1+k^2)^2(2(r_1+r_5)t_1}$	0	0	0	0
$\sigma_{1^+}^{\#1\,\alpha\beta}$	$\dfrac{1}{k^2(2r_1+r_5)}$	$\dfrac{1}{\sqrt{2}(k^2+k^4)(2r_1+r_5)}$	$-\dfrac{i}{\sqrt{2}(k+k^3)(2r_1+r_5)}$	0	0	0	0

ω/f matrix (right)

	$\omega_{1^+}^{\#1\,\alpha\beta}\dagger$	$\omega_{1^+}^{\#2\,\alpha\beta}\dagger$	$f_{1^+}^{\#1\,\alpha\beta}\dagger$	$\omega_{1^-}^{\#1\,\alpha}\dagger$	$\omega_{1^-}^{\#2\,\alpha}\dagger$	$f_{1^-}^{\#1\,\alpha}\dagger$	$f_{1^-}^{\#2\,\alpha}\dagger$
$f_{1^-}^{\#2\,\alpha}$	0	0	0	$i\,i\,k\,t_1$	0	0	0
$\omega_{1^-}^{\#2\,\alpha}$	0	0	0	$\dfrac{t_1}{\sqrt{2}}$	0	0	0
$\omega_{1^-}^{\#1\,\alpha}$	0	0	0	$k^2(r_1+r_5) - \dfrac{t_1}{2}$	$\dfrac{t_1}{\sqrt{2}}$	0	$-i\,k\,t_1$
$f_{1^+}^{\#1\,\alpha\beta}$	$-\dfrac{i\,k\,t_1}{3\sqrt{2}}$	$\dfrac{i\,k\,t_1}{3}$	$\dfrac{k^2 t_1}{3}$	0	0	0	0
$\omega_{1^+}^{\#2\,\alpha\beta}$	$-\dfrac{t_1}{3\sqrt{2}}$	$\dfrac{t_1}{3}$	$-\dfrac{1}{3}i\,k\,t_1$	0	0	0	0
$\omega_{1^+}^{\#1\,\alpha\beta}$	$k^2(2r_1+r_5) + \dfrac{t_1}{6}$	$-\dfrac{t_1}{3\sqrt{2}}$	$\dfrac{i\,k\,t_1}{3\sqrt{2}}$	0	0	0	0

ω_{2^+} / f_{2^+} / ω_{2^-} block

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

Lagrangian density

$$-t_1\,\omega_i{}^{\alpha l}\,\omega_{\kappa\alpha}{}^{\kappa} - \tfrac{1}{3}t_1\,\omega_i{}^{\kappa\lambda}\,\omega_{\kappa\lambda}{}^{i} + \tfrac{1}{3}t_1\,\omega_{\kappa\lambda}{}^{i}\,\omega_i{}^{\kappa\lambda} - r_5\,\partial_i\omega_{\kappa\lambda}{}^{i}\,\partial^l\omega_{\lambda}{}^{\alpha}{}_{\alpha} -$$
$$\tfrac{2}{3}r_1\partial^\beta\omega^{\theta\alpha}{}_\kappa\,\partial_\theta\omega_{\alpha\beta}{}^{\kappa} - \tfrac{2}{3}r_1\partial_\theta\omega_{\alpha\beta}{}^{\kappa}\partial_\kappa\omega^{\alpha\beta\theta} + \tfrac{2}{3}r_1\partial_\theta\omega_{\alpha\beta}{}^{\kappa}\partial_\kappa\omega^{\theta\alpha\beta}+ \cdots$$

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

Massive particle — $J^P = 2^-$

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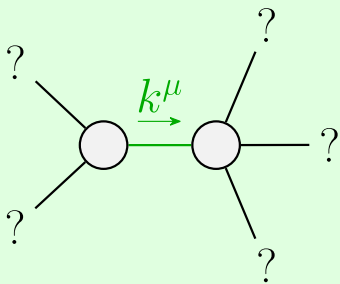
Quadratic pole

Pole residue:	$\dfrac{1}{(2r_1+r_5)t_1^2 p^2} > 0$
Polarisations:	2

Unitary conditions

$r_1 < 0$ && $r_5 > -2r_1$ && $t_1 > 0$