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

Main matrix (left)

	$\sigma^{\#1}_{1^+}{}^{\dagger\alpha\beta}$	$\sigma^{\#2}_{1^+}{}^{\dagger\alpha\beta}$	$\tau^{\#1}_{1^+}{}^{\dagger\alpha\beta}$	$\sigma^{\#1}_{1^-}{}^{\dagger\alpha}$	$\sigma^{\#2}_{1^-}{}^{\dagger\alpha}$	$\tau^{\#1}_{1^-}{}^{\dagger\alpha}$	$\tau^{\#2}_{1^-}{}^{\dagger\alpha}$
$\tau^{\#2}_{1^-}{}_{\alpha}$	0	0	0	$\dfrac{2ik}{t_1+2k^2t_1}$	$\dfrac{i\sqrt2\,k(2k^2r_1+t_1)}{(t_1+2k^2t_1)^2}$	0	$\dfrac{2k^2(2k^2r_1+t_1)}{(t_1+2k^2t_1)^2}$
$\tau^{\#1}_{1^-}{}_{\alpha}$	0	0	0	0	0	0	0
$\sigma^{\#2}_{1^-}{}_{\alpha}$	0	0	0	$\dfrac{\sqrt2}{t_1+2k^2t_1}$	$\dfrac{2k^2r_1+t_1}{(t_1+2k^2t_1)^2}$	0	$\dfrac{i\sqrt2\,k(2k^2r_1+t_1)}{(t_1+2k^2t_1)^2}$
$\sigma^{\#1}_{1^-}{}_{\alpha}$	0	0	0	0	$\dfrac{\sqrt2}{t_1+2k^2t_1}$	0	$-\dfrac{2ik}{t_1+2k^2t_1}$
$\tau^{\#1}_{1^+}{}_{\alpha\beta}$	$-\dfrac{i\sqrt2\,k}{t_1+k^2t_1}$	$\dfrac{ik}{(1+k^2)^2t_1}$	$\dfrac{k^2}{(1+k^2)^2t_1}$	0	0	0	0
$\sigma^{\#2}_{1^+}{}_{\alpha\beta}$	$-\dfrac{\sqrt2}{t_1+k^2t_1}$	$\dfrac{1}{(1+k^2)^2t_1}$	$\dfrac{ik}{(1+k^2)^2t_1}$	0	0	0	0
$\sigma^{\#1}_{1^+}{}_{\alpha\beta}$	0	$-\dfrac{\sqrt2}{t_1+k^2t_1}$	$\dfrac{i\sqrt2\,k}{t_1+k^2t_1}$	0	0	0	0

σ/τ 2^+ sector

	$\sigma^{\#1}_{2^+}{}_{\alpha\beta}$	$\tau^{\#1}_{2^+}{}_{\alpha\beta}$	$\sigma^{\#1}_{2^-}{}_{\alpha\beta\chi}$
$\sigma^{\#1}_{2^+}{}^{\dagger\alpha\beta}$	$\dfrac{2}{(1+2k^2)^2t_1}$	$-\dfrac{2i\sqrt2\,k}{(1+2k^2)^2t_1}$	0
$\tau^{\#1}_{2^+}{}^{\dagger\alpha\beta}$	$\dfrac{2i\sqrt2\,k}{(1+2k^2)^2t_1}$	$\dfrac{4k^2}{(1+2k^2)^2t_1}$	0
$\sigma^{\#1}_{2^-}{}^{\dagger\alpha\beta\chi}$	0	0	$\dfrac{2}{2k^2r_1+t_1}$

ω/f 0^+ sector

	$\omega^{\#1}_{0^+}$	$f^{\#1}_{0^+}$	$f^{\#2}_{0^+}$	$\omega^{\#1}_{0^-}$
$\omega^{\#1}_{0^+}{}^{\dagger}$	$-t_1$	$i\sqrt2\,kt_1$	0	0
$f^{\#1}_{0^+}{}^{\dagger}$	$-i\sqrt2\,kt_1$	$-2k^2t_1$	0	0
$f^{\#2}_{0^+}{}^{\dagger}$	0	0	0	0
$\omega^{\#1}_{0^-}{}^{\dagger}$	0	0	0	$-t_1$

Source constraints

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

Middle ω/f matrix

	$\omega^{\#1}_{1^+}{}^{\dagger\alpha\beta}$	$\omega^{\#2}_{1^+}{}^{\dagger\alpha\beta}$	$f^{\#1}_{1^+}{}^{\dagger\alpha\beta}$	$\omega^{\#1}_{1^-}{}^{\dagger\alpha}$	$\omega^{\#2}_{1^-}{}^{\dagger\alpha}$	$f^{\#1}_{1^-}{}^{\dagger\alpha}$	$f^{\#2}_{1^-}{}^{\dagger\alpha}$
$f^{\#2}_{1^-}{}_{\alpha}$	0	0	0	$i\,k\,t_1$	0	0	0
$f^{\#1}_{1^-}{}_{\alpha}$	0	0	0	0	0	0	0
$\omega^{\#2}_{1^-}{}_{\alpha}$	0	0	0	$\dfrac{t_1}{\sqrt2}$	0	0	0
$\omega^{\#1}_{1^-}{}_{\alpha}$	0	0	0	$-k^2r_1-\dfrac{t_1}{2}$	$\dfrac{t_1}{\sqrt2}$	0	$-i\,k\,t_1$
$f^{\#1}_{1^+}{}_{\alpha\beta}$	$\dfrac{i\,k\,t_1}{\sqrt2}$	0	0	0	0	0	0
$\omega^{\#2}_{1^+}{}_{\alpha\beta}$	$-\dfrac{t_1}{\sqrt2}$	$\dfrac{t_1}{\sqrt2}$	0	0	0	0	0
$\omega^{\#1}_{1^+}{}_{\alpha\beta}$	$-\dfrac{t_1}{2}$	$-\dfrac{t_1}{\sqrt2}$	$\dfrac{i\,k\,t_1}{\sqrt2}$	0	0	0	0

ω/f 2^+ sector

	$\omega^{\#1}_{2^+}{}_{\alpha\beta}$	$f^{\#1}_{2^+}{}_{\alpha\beta}$	$\omega^{\#1}_{2^-}{}_{\alpha\beta\chi}$
$\omega^{\#1}_{2^+}{}^{\dagger\alpha\beta}$	$\dfrac{t_1}{2}$	$-\dfrac{i\,k\,t_1}{\sqrt2}$	0
$f^{\#1}_{2^+}{}^{\dagger\alpha\beta}$	$\dfrac{i\,k\,t_1}{\sqrt2}$	k^2t_1	0
$\omega^{\#1}_{2^-}{}^{\dagger\alpha\beta\chi}$	0	0	$k^2r_1+\dfrac{t_1}{2}$

σ/τ 0 sector (bottom right)

	$\sigma^{\#1}_{0^+}{}^{\dagger}$	$\tau^{\#1}_{0^+}{}^{\dagger}$	$\tau^{\#2}_{0^+}{}^{\dagger}$	$\sigma^{\#1}_{0^-}{}^{\dagger}$
$\tau^{\#2}_{0^+}$	0	0	0	$-\dfrac{1}{t_1}$
$\tau^{\#1}_{0^+}$	$\dfrac{i\sqrt2\,k}{(1+2k^2)^2t_1}$	$\dfrac{2k^2}{(1+2k^2)^2t_1}$	0	0
$\sigma^{\#1}_{0^+}$	$\dfrac{1}{(1+2k^2)^2t_1}$	$\dfrac{i\sqrt2\,k}{(1+2k^2)^2t_1}$	0	0

Massive particle

$J^P = 2^-$, k^μ

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

Unitarity conditions
$r_1 < 0\ \&\&\ t_1 < 0$

(No massless particles)