Left matrix ($J^P = 1$ sector)

	$\sigma_{1^+}^{\#1}\dagger^{\alpha\beta}$	$\sigma_{1^+}^{\#2}\dagger^{\alpha\beta}$	$\tau_{1^+}^{\#1}\dagger^{\alpha\beta}$	$\sigma_{1^-}^{\#1}\dagger^{\alpha}$	$\sigma_{1^-}^{\#2}\dagger^{\alpha}$	$\tau_{1^-}^{\#1}\dagger^{\alpha}$	$\tau_{1^-}^{\#2}\dagger^{\alpha}$
$\tau_{1^-}^{\#2}{}_{\alpha}$	0	0	0	$-\dfrac{2ik(t_1-2t_3)}{(1+2k^2)(3t_1t_3+2k^2r_5(t_1+t_3))}$	$\dfrac{i\sqrt{2}\,k(6k^2r_5+t_1+4t_3)}{(1+2k^2)^2(3t_1t_3+2k^2r_5(t_1+t_3))}$	0	$\dfrac{2k^2(6k^2r_5+t_1+4t_3)}{(1+2k^2)^2(3t_1t_3+2k^2r_5(t_1+t_3))}$
$\tau_{1^-}^{\#1}{}_{\alpha}$	0	0	0	0	0	0	0
$\sigma_{1^-}^{\#2}{}_{\alpha}$	0	0	0	$-\dfrac{\sqrt{2}(t_1-2t_3)}{(1+2k^2)(3t_1t_3+2k^2r_5(t_1+t_3))}$	$\dfrac{6k^2r_5+t_1+4t_3}{(1+2k^2)^2(3t_1t_3+2k^2r_5(t_1+t_3))}$	0	$-\dfrac{i\sqrt{2}\,k(6k^2r_5+t_1+4t_3)}{(1+2k^2)^2(3t_1t_3+2k^2r_5(t_1+t_3))}$
$\sigma_{1^-}^{\#1}{}_{\alpha}$	0	0	0	$\dfrac{2(t_1+t_3)}{3t_1t_3+2k^2r_5(t_1+t_3)}$	$\dfrac{\sqrt{2}(t_1-2t_3)}{(1+2k^2)(3t_1t_3+2k^2r_5(t_1+t_3))}$	0	$\dfrac{2ik(t_1-2t_3)}{(1+2k^2)(3t_1t_3+2k^2r_5(t_1+t_3))}$
$\tau_{1^+}^{\#1}{}_{\alpha\beta}$	$-\dfrac{i\sqrt{2}\,k}{t_1+k^2t_1}$	$-\dfrac{i(2k^3r_5-kt_1)}{(1+k^2)^2t_1}$	$-\dfrac{2k^4r_5+k^2t_1}{(1+k^2)^2t_1}$	0	0	0	0
$\sigma_{1^+}^{\#2}{}_{\alpha\beta}$	$-\dfrac{\sqrt{2}}{t_1+k^2t_1}$	$-\dfrac{2k^2r_5+t_1}{(1+k^2)^2t_1}$	$\dfrac{i(2k^3r_5-kt_1)}{(1+k^2)^2t_1}$	0	0	0	0
$\sigma_{1^+}^{\#1}{}_{\alpha\beta}$	0	$-\dfrac{\sqrt{2}}{t_1+k^2t_1}$	$\dfrac{i\sqrt{2}\,k}{t_1+k^2t_1}$	0	0	0	0

Top matrix ($J^P = 1$ wave operator)

	$\omega_{1^+}^{\#1}{}_{\alpha\beta}$	$\omega_{1^+}^{\#2}{}_{\alpha\beta}$	$f_{1^+}^{\#1}{}_{\alpha\beta}$	$\omega_{1^-}^{\#1}{}_{\alpha}$	$\omega_{1^-}^{\#2}{}_{\alpha}$	$f_{1^-}^{\#1}{}_{\alpha}$	$f_{1^-}^{\#2}{}_{\alpha}$
$\omega_{1^+}^{\#1}\dagger^{\alpha\beta}$	$k^2r_5-\dfrac{t_1}{2}$	$-\dfrac{t_1}{\sqrt{2}}$	$-\dfrac{ikt_1}{\sqrt{2}}$	0	0	0	0
$\omega_{1^+}^{\#2}\dagger^{\alpha\beta}$	$-\dfrac{t_1}{\sqrt{2}}$	0	0	0	0	0	0
$f_{1^+}^{\#1}\dagger^{\alpha\beta}$	$\dfrac{ikt_1}{\sqrt{2}}$	0	0	0	0	0	0
$\omega_{1^-}^{\#1}\dagger^{\alpha}$	0	0	0	$\dfrac{1}{6}(6k^2r_5+t_1+4t_3)$	$\dfrac{t_1-2t_3}{3\sqrt{2}}$	0	$\dfrac{1}{3}ik(t_1-2t_3)$
$\omega_{1^-}^{\#2}\dagger^{\alpha}$	0	0	0	$\dfrac{t_1-2t_3}{3\sqrt{2}}$	$\dfrac{t_1+t_3}{3}$	0	$\dfrac{1}{3}i\sqrt{2}\,k(t_1+t_3)$
$f_{1^-}^{\#1}\dagger^{\alpha}$	0	0	0	0	0	0	0
$f_{1^-}^{\#2}\dagger^{\alpha}$	0	0	0	$-\dfrac{1}{3}ik(t_1-2t_3)$	$-\dfrac{1}{3}i\sqrt{2}\,k(t_1+t_3)$	0	$\dfrac{2}{3}k^2(t_1+t_3)$

$J^P = 0$ wave operator

	$\omega_{0^+}^{\#1}\dagger$	$f_{0^+}^{\#1}\dagger$	$f_{0^+}^{\#2}\dagger$	$\omega_{0^-}^{\#1}\dagger$
$\omega_{0^+}^{\#1}$	0	0	0	$k^2r_2-t_1$
$f_{0^+}^{\#2}$	0	0	0	0
$f_{0^+}^{\#1}$	$-i\sqrt{2}\,kt_3$	$2k^2t_3$	0	0
$\omega_{0^-}^{\#1}$	t_3	$i\sqrt{2}\,kt_3$	0	0

$J^P = 2$ wave operator

	$\omega_{2^+}^{\#1}{}_{\alpha\beta}$	$f_{2^+}^{\#1}{}_{\alpha\beta}$	$\omega_{2^-}^{\#1}{}_{\alpha\beta\chi}$
$\omega_{2^+}^{\#1}\dagger^{\alpha\beta}$	$\dfrac{t_1}{2}$	$-\dfrac{ikt_1}{\sqrt{2}}$	0
$f_{2^+}^{\#1}\dagger^{\alpha\beta}$	$\dfrac{ikt_1}{\sqrt{2}}$	k^2t_1	0
$\omega_{2^-}^{\#1}\dagger^{\alpha\beta\chi}$	0	0	$\dfrac{t_1}{2}$

$J^P = 2$ propagator

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

$J^P = 0$ propagator

	$\sigma_{0^+}^{\#1}\dagger$	$\tau_{0^+}^{\#1}\dagger$	$\tau_{0^+}^{\#2}\dagger$	$\sigma_{0^-}^{\#1}\dagger$
$\sigma_{0^-}^{\#1}$	0	0	0	$\dfrac{1}{k^2r_2-t_1}$
$\tau_{0^+}^{\#2}$	0	0	0	0
$\tau_{0^+}^{\#1}$	$-\dfrac{i\sqrt{2}\,k}{(1+2k^2)^2t_3}$	$\dfrac{2k^2}{(1+2k^2)^2t_3}$	0	0
$\sigma_{0^+}^{\#1}$	$\dfrac{1}{(1+2k^2)^2t_3}$	$\dfrac{i\sqrt{2}\,k}{(1+2k^2)^2t_3}$	0	0

Source constraints

SO(3) irreps	#
$\tau_{0^+}^{\#2}==0$	1
$\tau_{0^+}^{\#1}-2ik\,\sigma_{0^+}^{\#1}==0$	1
$\tau_{1^-}^{\#2\alpha}+2ik\,\sigma_{1^-}^{\#2\alpha}==0$	3
$\tau_{1^-}^{\#1\alpha}==0$	3
$\tau_{1^+}^{\#1\alpha\beta}+ik\,\sigma_{1^+}^{\#2\alpha\beta}==0$	3
$\tau_{2^+}^{\#1\alpha\beta}-2ik\,\sigma_{2^+}^{\#1\alpha\beta}==0$	5
Total #:	16

Lagrangian density

$$
\begin{aligned}
&-\tfrac{1}{3}t_1\,\omega_I{}^{\alpha I}\omega_{\kappa\alpha}{}^\kappa+\tfrac{2}{3}t_3\,\omega_I{}^{\alpha I}\omega_{\kappa\alpha}{}^\kappa-t_1\,\omega_I{}^{\kappa\lambda}\omega_{\kappa\lambda}{}^I+f^{\alpha\beta}\tau_{\alpha\beta}+\\
&\omega^{\alpha\beta\chi}\sigma_{\alpha\beta\chi}-r_5\,\partial_\iota\omega_\kappa{}^{\kappa\lambda}\partial^\iota\omega_{\lambda\alpha}{}^\alpha+\tfrac{2}{3}r_2\,\partial_\theta\omega_{\alpha\beta}{}^\theta{}_\kappa\,\partial_\kappa\omega^{\alpha\beta\theta}-\\
&\tfrac{2}{3}r_2\,\partial_\theta\omega_{\alpha\beta}{}^{\theta\alpha}\partial_\kappa\omega^{\theta\kappa\lambda}+r_5\,\partial_\theta\omega_\lambda{}_\alpha{}^\alpha\,\partial_\kappa\omega^{\theta\kappa\lambda}+r_5\,\partial_\theta\omega_\lambda{}_\alpha{}^\alpha\,\partial_\kappa\omega^{\kappa\lambda\theta}+\\
&2r_5\,\partial_\theta\omega_\lambda{}_\alpha{}^{\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_3\,\omega_{\kappa\lambda}{}^\lambda\partial^\kappa f^I{}_I+\\
&\tfrac{1}{3}t_1\,\omega_{\kappa\alpha}{}^\alpha\partial^\kappa f^I{}_I-\tfrac{2}{3}t_3\,\omega_{\kappa\alpha}{}^\alpha\partial^\kappa f^I{}_I+\tfrac{1}{3}t_1\,\partial_\kappa f^\lambda{}_\lambda\,\partial^\kappa f^I{}_I+\\
&\tfrac{2}{3}t_1\,\partial^\alpha f_{\kappa\alpha}\,\partial^\kappa f^I{}_I-\tfrac{4}{3}t_3\,\partial^\alpha f_{\kappa\alpha}\,\partial^\kappa f_{\lambda}{}^\lambda+\tfrac{2}{3}t_3\,\partial_\kappa f^\lambda{}_\lambda\,\partial^\kappa f_{\lambda\kappa}{}^\theta+\tfrac{1}{3}t_1\,\partial_\kappa f^\lambda{}_\lambda\,\partial^\kappa f_\lambda{}^\theta-\\
&2t_1\,\omega_{\iota\kappa\theta}\,\partial^{\kappa}f^{\iota\theta}-\tfrac{1}{3}t_1\,\omega_{\iota\lambda}{}^\alpha\partial^\alpha f^I{}_\iota+\tfrac{2}{3}t_3\,\omega_{\iota\lambda}{}^\alpha\partial^\alpha f^I{}_\iota+\tfrac{1}{3}t_1\,\partial_\theta f^\lambda{}_\lambda\,\partial^\theta f^I{}_\lambda-\\
&\tfrac{2}{3}t_3\,\omega_{\iota\lambda}{}^\alpha\partial^\alpha f^\lambda{}_\kappa+\tfrac{2}{3}t_3\,\partial^\alpha f^\lambda{}_\alpha\,\partial^\kappa f_{\lambda\kappa}+\tfrac{1}{2}t_1\,\partial^\alpha f^\lambda{}_\kappa\,\partial^\kappa f_{\lambda\alpha}+\tfrac{1}{2}t_1\,\partial_\theta f_\lambda{}^\theta\,\partial^\kappa f_\lambda{}_\theta-\\
&\tfrac{2}{3}r_2\,\partial^\beta\omega_I{}^{\alpha\lambda}\partial_\lambda\omega_{\alpha\beta}{}^\iota+\tfrac{2}{3}r_2\,\partial^\beta\omega_I{}^{\lambda\alpha}\partial_\lambda\omega_{\alpha\beta}{}^\iota+r_5\,\partial_\alpha\omega_\lambda{}_\alpha{}^\theta\partial^\lambda\omega^{\theta\kappa}{}_\kappa-r_5\,\partial_\theta\omega_\lambda{}_\alpha{}^\alpha\partial^\lambda\omega^{\theta\kappa}{}_\kappa
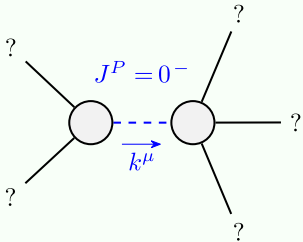\end{aligned}
$$

Particle content

Massive particle ($J^P = 1^-$)

Pole residue:	$\dfrac{6t_1t_3(t_1+t_3)-3r_5(t_1^2+2t_3^2)}{2r_5(t_1+t_3)(-3t_1t_3+r_5(t_1+t_3))}>0$
Polarisations:	3
Square mass:	$-\dfrac{3t_1t_3}{2r_5t_1+2r_5t_3}>0$
Spin:	1
Parity:	Odd

Massive particle ($J^P = 0^-$)

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

(No massless particles)

$$r_2<0 \;\&\&\; r_5<0 \;\&\&\; t_1<0 \;\&\&\; 0<t_3<-t_1$$