${\mathfrak l}_{1}^{\#2}{}_{\alpha}$	0	0	0	$-\frac{2ik(t_1-2t_3)}{(1+2k^2)(3t_1t_3+2k^2r_5(t_1+t_3))}$	$\frac{i\sqrt{2} k(6k^2 r_5 + t_1 + 4t_3)}{(1 + 2k^2)^2 (3t_1 t_3 + 2k^2 r_5 (t_1 + t_3))}$	0	$\frac{2 k^2 (6 k^2 r_5 + t_1 + 4 t_3)}{(1 + 2 k^2)^2 (3 t_1 t_3 + 2 k^2 r_5 (t_1 + t_3))}$
$\tau_{1^-}^{\#1}\alpha$	0	0	0	0	0	0	0
$\sigma_{1}^{\#2}{}_{\alpha}$	0	0	0	$-\frac{\sqrt{2} (t_1-2t_3)}{(1+2k^2)(3t_1t_3+2k^2r_5(t_1+t_3))}$	$\frac{6k^2r_5+t_1+4t_3}{(1+2k^2)^2(3t_1t_3+2k^2r_5(t_1+t_3))}$	0	$-\frac{i\sqrt{2}k(6k^2r_5+t_1+4t_3)}{(1+2k^2)^2(3t_1t_3+2k^2r_5(t_1+t_3))}$
$\sigma_{1^{-}\alpha}^{\#1}$	0	0	0	$\frac{2(t_1+t_3)}{3t_1t_3+2\lambda^2r_5(t_1+t_3)}$	$-\frac{\sqrt{2} (t_1-2t_3)}{(1+2k^2)(3t_1t_3+2k^2r_5(t_1+t_3))}$	0	$\frac{2ik(t_1-2t_3)}{(1+2k^2)(3t_1t_3+2k^2r_5(t_1+t_3))}$
$\tau_{1}^{\#1}_{+}$	$-\frac{i\sqrt{2}k}{t_1+k^2t_1}$	$-\frac{i(2k^3r_5-kt_1)}{(1+k^2)^2t_1^2}$	$\frac{-2k^4r_5+k^2t_1}{(1+k^2)^2t_1^2}$	0	0	0	0
$\sigma_{1}^{\#2}$	$-\frac{\sqrt{2}}{t_1+k^2t_1}$	$\frac{-2k^2r_5+t_1}{(1+k^2)^2t_1^2}$	$\frac{i(2k^3r_5-kt_1)}{(1+k^2)^2t_1^2}$	0	0	0	0
$\sigma_{1}^{\#1}{}_{\alpha\beta}$	0	$-\frac{\sqrt{2}}{t_1+k^2t_1}$	$\frac{i\sqrt{2}k}{t_1+k^2t_1}$	0	0	0	0
	$\sigma_{1}^{\#1} + \alpha \beta$	$\sigma_{1}^{#2} + \alpha \beta$	$\tau_1^{\#1} + ^{\alpha\beta}$	$\sigma_{1^{^{-}}}^{\#1} +^{\alpha}$	$\sigma_1^{\#2} +^{\alpha}$	$\tau_{1}^{\#1} +^{\alpha}$	$ au_1^{\#2} + ^{lpha}$

	$\sigma_{0}^{\#1}$	$ au_0^{\#1}$	$ au_{0}^{\#2}$	$\sigma_0^{\sharp 1}$
$\sigma_{0}^{\#1}$ †	$\frac{1}{(1+2k^2)^2t_3}$	$-\frac{i\sqrt{2} k}{(1+2k^2)^2 t_3}$	0	0
$\tau_{0}^{\#1}$ †	$\frac{i\sqrt{2} k}{(1+2k^2)^2 t_3}$	$\frac{2k^2}{(1+2k^2)^2t_3}$	0	0
$\tau_{0}^{\#2}$ †	0	0	0	0
$\sigma_{0}^{\#_{1}}$ †	0	0	0	$-\frac{1}{t_1}$

$ \begin{array}{ccccccccccccccccccccccccccccccccc$		$\sigma_{0}^{\#1}$	$ au_0^{\#1}$	$ au_{0}^{\#2}$	$\sigma_0^{\#1}$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	†	$\frac{1}{(1+2k^2)^2t_3}$	$-\frac{i \sqrt{2} k}{(1+2k^2)^2 t_3}$	0	0
+ 0 0 0 -1	†	$\frac{i\sqrt{2} k}{(1+2k^2)^2 t_3}$		0	0
$+$ 0 0 $-\frac{1}{t_1}$	†	0	0	0	0
	†	0	0	0	$-\frac{1}{t_1}$

						1	
$f_{1^-}^{\#2} \alpha$	0	0	0	$\frac{1}{3}$ i k (t_1 - 2 t_3)	$\frac{1}{3}\bar{l}\sqrt{2}k(t_1+t_3)$	0	$\frac{2}{3} k^2 (t_1 + t_3)$
$f_{1^-}^{\#1} \alpha$	0	0	0	0	0	0	0
$\omega_{1^{-}\alpha}^{\#2}$	0	0	0	$\frac{t_1-2t_3}{3\sqrt{2}}$	$\frac{t_1 + t_3}{3}$	0	$-\frac{1}{3}\bar{l}\sqrt{2}k(t_1+t_3) $
$\omega_{1^{-}}^{\#1}{}_{\alpha}$	0	0	0	$\frac{1}{6} \left(6 k^2 r_5 + t_1 + 4 t_3 \right)$	$\frac{t_1-2t_3}{3\sqrt{2}}$	0	$-\frac{1}{3}ik(t_1-2t_3)$
$f_{1}^{\#1}{}_{\!$	$-\frac{ikt_{1}}{\sqrt{2}}$	0	0	0	0	0	0
$\omega_{1}^{\#2}_{+} \alpha_\beta f_{1}^{\#1}_{+} \alpha_\beta$	$-\frac{t_1}{\sqrt{2}}$	0	0	0	0	0	0
$\omega_1^{\#1}{}_+$ lpha	$k^2 r_5 - \frac{t_1}{2}$	$-\frac{t_1}{\sqrt{2}}$	$\frac{i k t_1}{\sqrt{2}}$	0	0	0	0
	$\omega_{1}^{\#1} + \alpha^{\beta}$	$\omega_1^{\#2} + \alpha \beta$	$f_1^{#1} + \alpha \beta$	$\omega_{1}^{\#1} +^{\alpha}$	$\omega_1^{\#2} +^{lpha}$	$f_{1}^{#1} +^{\alpha}$	$f_{1}^{\#2} +^{lpha}$

	#	1	1	3	3	3	2	16
Source constraints	SO(3) irreps	$t_0^{#2} == 0$	$\tau_{0+}^{\#1} - 2 i k \sigma_{0+}^{\#1} == 0$	$\tau_{1}^{\#2}{}^{\alpha} + 2ik \sigma_{1}^{\#2}{}^{\alpha} = 0$	$\tau_{1}^{\#1}{}^{\alpha} == 0$	$\tau_{1+}^{\#1}\alpha\beta + ik \ \sigma_{1+}^{\#2}\alpha\beta == 0$	$\tau_{2+}^{\#1}\alpha\beta$ - 2 ik $\sigma_{2+}^{\#1}\alpha\beta$ == 0	Total #:

 $\omega_{2^{+}\alpha\beta}^{\#1} \; f_{2^{+}\alpha\beta}^{\#1} \; \omega_{2^{-}\alpha\beta\chi}^{\#1}$

 $\frac{ikt_1}{\sqrt{2}}$

 $k^2 t_1$

0

0

<u>t</u>1 2

<u>t</u>1 2

 $\frac{i k t_1}{\sqrt{2}}$

 $\omega_2^{\#1} \dagger^{\alpha\beta}$

 $f_{2+}^{#1} \dagger^{\alpha\beta}$

 $\omega_2^{\#1} \dagger^{\alpha\beta\chi}$

$\sigma_{2}^{\#1}$ $_{\alpha eta \chi}$	0	0	$\frac{2}{t_1}$
$\tau_{2}^{\#1}$	$-\frac{2i\sqrt{2}k}{(1+2k^2)^2t_1}$	$\frac{4k^2}{(1+2k^2)^2t_1}$	0
$\sigma_{2}^{\#1}{}_{\alpha\beta}$)	$\frac{2i\sqrt{2}k}{(1+2k^2)^2t_1}$	0
	$\sigma_2^{\#1} + ^{lphaeta}$	$\tau_{2}^{\#1} + \alpha \beta$	$\sigma_{2}^{*1} +^{lphaeta\chi}$

0

0

 $-i\sqrt{2}kt_3$

*t*³

 $f_{0}^{#2}$

 $f_{0}^{\#1}$

 $\omega_{0}^{\#1}$

0

 $2 k^2 t_3$

 $i\sqrt{2}kt_3$

 $\omega_{0}^{*1} + f_{0}^{*1} + f_{$

0

0

0

0

0

0

Lagrangian density
$-\frac{1}{3}t_{1}\;\omega_{,\alpha}^{\;\alpha_{'}}\;\omega_{\kappa\alpha}^{\;\;\kappa}+\frac{2}{3}t_{3}\;\omega_{,\alpha}^{\;\alpha_{'}}\;\omega_{\kappa\alpha}^{\;\;\kappa}-t_{1}\;\omega_{,\kappa}^{\;\;\kappa\lambda}\;\omega_{\kappa\lambda}^{\;\;\prime}+f^{\alpha\beta}\;\tau_{\alpha\beta}+\omega^{\alpha\beta\chi}\;\sigma_{\alpha\beta\chi}^{\;\;-}$
$r_5\partial_i\omega^{\kappa\lambda}_{\kappa}\partial^i\omega_{\alpha}^{\alpha}-r_5\partial_\alpha\omega_{\alpha}^{\alpha}\partial^\kappa\omega^{\theta\kappa\lambda}+r_5\partial_\theta\omega_{\alpha}^{\alpha}\partial_\kappa\omega^{\theta\kappa\lambda}-r_5\partial_\alpha\omega_{\alpha}^{\alpha}\partial^\kappa\omega^{\kappa\lambda\theta}+$
$2 r_5 \partial_\theta \omega_\lambda^{\ \alpha} \partial_\kappa \omega^{\kappa\lambda\theta} - \frac{1}{2} t_1 \partial^\alpha f_{\theta\kappa} \partial^\kappa f_\alpha^{\ \theta} - \frac{1}{2} t_1 \partial^\alpha f_{\kappa\theta} \partial^\kappa f_\alpha^{\ \theta} - \frac{1}{2} t_1 \partial^\alpha f_\lambda^{\ \lambda} +$
$\frac{1}{3}t_{1}\;\omega_{\kappa\alpha}^{\;\;\alpha}\;\partial^{\kappa}f'_{\;\;\prime}-\frac{2}{3}t_{3}\;\omega_{\kappa\alpha}^{\;\;\alpha}\;\partial^{\kappa}f'_{\;\;\prime}+\frac{1}{3}t_{1}\;\omega_{\kappa\lambda}^{\;\;\lambda}\;\partial^{\kappa}f'_{\;\;\prime}-\frac{2}{3}t_{3}\;\omega_{\kappa\lambda}^{\;\;\lambda}\;\partial^{\kappa}f'_{\;\;\prime}+$
$\frac{2}{3}t_1\partial^\alpha f_{\kappa\alpha}\partial^\kappa f'_{\ \prime}-\frac{4}{3}t_3\partial^\alpha f_{\kappa\alpha}\partial^\kappa f'_{\ \prime}-\frac{1}{3}t_1\partial_\kappa f^\lambda_{\ \lambda}\partial^\kappa f'_{\ \prime}+\frac{2}{3}t_3\partial_\kappa f^\lambda_{\ \lambda}\partial^\kappa f'_{\ \prime}+$
$2t_1 \omega_{ik\theta} \partial^k f^{i\theta} - \frac{1}{3}t_1 \omega_{i\alpha}^{\alpha} \partial^k f^i_{k} + \frac{2}{3}t_3 \omega_{i\alpha}^{\alpha} \partial^k f^i_{k} - \frac{1}{3}t_1 \omega_{i\lambda}^{\lambda} \partial^k f^i_{k} +$
$\frac{2}{3}t_3\;\omega_{,\lambda}^{\;\;\lambda}\;\partial^{\kappa}f'_{\;\;\kappa} + \frac{1}{2}t_1\;\partial^{\alpha}f^{\lambda}_{\;\;\kappa}\;\partial^{\kappa}f_{\;\lambda\alpha} + \frac{1}{2}t_1\;\partial_{\kappa}f_{\;\;\theta}^{\;\;\lambda}\;\partial^{\kappa}f_{\;\lambda}^{\;\;\theta} + \frac{1}{2}t_1\;\partial_{\kappa}f^{\lambda}_{\;\;\theta}\;\partial^{\kappa}f_{\;\lambda}^{\;\;\theta} -$
$\frac{1}{3}t_{1}\partial^{\alpha}f^{\lambda}_{\alpha}\partial^{\kappa}f_{\lambda\kappa}+\frac{2}{3}t_{3}\partial^{\alpha}f^{\lambda}_{\alpha}\partial^{\kappa}f_{\lambda\kappa}+r_{5}\partial_{\alpha}\omega_{\alpha}^{\alpha}\partial^{\lambda}\omega^{\theta\kappa}_{\kappa}-r_{5}\partial_{\theta}\omega_{\alpha}^{\alpha}\partial^{\lambda}\omega^{\theta\kappa}_{\kappa}$

	?
?	$J^P = 1^-$
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	$\overrightarrow{k^{\mu}}$
?	\

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

(No massless particles)