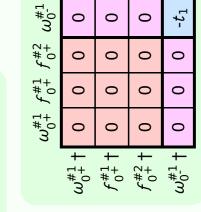
$\tau_{1}^{\#2}$	0	0	0	$\frac{12ik}{(3+4k^2)^2t_1}$	$\frac{12 i \sqrt{2} k}{(3+4 k^2)^2 t_1}$	0	$\frac{24  k^2}{(3+4  k^2)^2  t_1}$
$\tau_{1^{-}}^{\#1}\alpha$	0	0	0	0	0	0	0
$\sigma_{1}^{\#2}$	0	0	0	$\frac{6\sqrt{2}}{(3+4k^2)^2t_1}$	$\frac{12}{(3+4k^2)^2t_1}$	0	$-\frac{12i\sqrt{2}k}{(3+4k^2)^2t_1}$
$\sigma_{1}^{\#1}{}_{\alpha}$	0	0	0	$\frac{6}{(3+4 k^2)^2 t_1}$	$\frac{6\sqrt{2}}{(3+4k^2)^2t_1}$	0	$-\frac{12ik}{(3+4k^2)^2t_1}$
$\tau_1^{\#1}_{+\alpha\beta}$	$-\frac{i\sqrt{2}k}{t_1+k^2t_1}$	$-\frac{i(2k^3r_1-kt_1)}{(1+k^2)^2t_1^2}$	$\frac{-2k^4r_1+k^2t_1}{(1+k^2)^2t_1^2}$	0	0	0	0
$\sigma_{1}^{\#2}{}_{\alpha\beta}$	$-\frac{\sqrt{2}}{t_1+k^2t_1}$	$\frac{-2k^2r_1+t_1}{(1+k^2)^2t_1^2}$	$\frac{i(2k^3r_1-kt_1)}{(1+k^2)^2t_1^2}$	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
	$\sigma_1^{\#1} + \alpha \beta$	$r_1^{\#2} + \alpha \beta$	$\tau_1^{\#1} + \alpha \beta$	$\sigma_{1}^{\#1} \dagger^{lpha}$	$\sigma_{1}^{\#2}  \dagger^{lpha}$	$\tau_{1}^{\#1} +^{\alpha}$	$\tau_1^{\#^2} +^{\alpha}$

Lagrangian density	$-\frac{1}{3}t_1\;\omega_{,}^{\alpha\prime}\;\omega_{\kappa\alpha}^{ \  \   \kappa}-t_1\;\omega_{,}^{\  \   \kappa\lambda}\;\omega_{\kappa\lambda}^{ \   \prime}+f^{\alpha\beta}\;\tau_{\alpha\beta}+\omega^{\alpha\beta\chi}\;\sigma_{\alpha\beta\chi}+r_1\partial_{,}\omega_{\kappa\lambda}^{\  \   \kappa\lambda}^{ \   \sigma}-$	$\frac{2}{3}r_1\partial^\beta\omega^{\theta\alpha}_{\alpha}\partial_{\theta}\omega_{\alpha\beta}^{} - \frac{2}{3}r_1\partial_{\theta}\omega_{\alpha\beta}^{}\partial_{\kappa}\omega^{\alpha\beta\theta} + \frac{2}{3}r_1\partial_{\theta}\omega_{\alpha\beta}^{}\partial_{\kappa}\omega^{\theta\alpha\beta} +$	$r_1 \partial_\alpha \omega_\lambda^{\ \alpha}_{\ \ \theta} \partial_\kappa \omega^{\theta \kappa \lambda}_{\ \ \lambda} - r_1 \partial_\theta \omega_\lambda^{\ \alpha}_{\ \ \alpha} \partial_\kappa \omega^{\theta \kappa \lambda}_{\ \ \lambda} + r_1 \partial_\alpha \omega_\lambda^{\ \alpha}_{\ \ \theta} \partial_\kappa \omega^{\kappa \lambda \theta}_{\ \ \lambda} - 2  r_1  \partial_\theta \omega_\lambda^{\ \alpha}_{\ \ \alpha} \partial_\kappa \omega^{\kappa \lambda \theta}_{\ \ \lambda} -$	$\frac{1}{2}t_1\partial^{\alpha}f_{\theta\kappa}\partial^{\kappa}f_{\alpha}^{\ \ \theta}-\frac{1}{2}t_1\partial^{\alpha}f_{\kappa\theta}\partial^{\kappa}f_{\alpha}^{\ \ \theta}-\frac{1}{2}t_1\partial^{\alpha}f^{\lambda}_{\ \ \kappa}\partial^{\kappa}f_{\alpha\lambda}+\frac{1}{3}t_1\omega_{\kappa\alpha}^{\ \ \alpha}\partial^{\kappa}f'_{\ \ \gamma}+$	$\frac{1}{3}t_{1}\ \omega_{\kappa\lambda}^{\ \ \lambda}\ \partial^{\kappa}f'_{\ \ \prime} + \frac{2}{3}t_{1}\ \partial^{\alpha}f_{\ \kappa\alpha}\ \partial^{\kappa}f'_{\ \ \prime} - \frac{1}{3}t_{1}\ \partial_{\kappa}f^{\lambda}_{\ \ \lambda}\ \partial^{\kappa}f'_{\ \ \prime} + 2t_{1}\ \omega_{\ \kappa\theta}\ \partial^{\kappa}f^{\prime\theta} -$	$\frac{1}{3}t_1\;\omega_{,\alpha}^{\;\;\alpha}\;\partial^\kappa f'_{\;\;\kappa}-\frac{1}{3}t_1\;\omega_{,\lambda}^{\;\;\lambda}\;\partial^\kappa f'_{\;\;\kappa}+\frac{1}{2}t_1\;\partial^\alpha f^\lambda_{\;\;\kappa}\;\partial^\kappa f_{\lambda\alpha}+\frac{1}{2}t_1\;\partial_\kappa f_{\;\;\beta}^{\;\;\lambda}\;\partial^\kappa f_{\lambda}^{\;\;\theta}+$	$\frac{1}{2}t_1\partial_\kappa f^\lambda_{\ \ \theta}\partial^\kappa f_\lambda^{\ \ \theta} - \frac{1}{3}t_1\partial^\alpha f^\lambda_{\ \ \alpha}\partial^\kappa f_{\lambda\kappa} + \frac{2}{3}r_1\partial_\kappa \omega^{\alpha\beta\theta}\partial^\kappa \omega_{\alpha\beta\theta} - \frac{2}{3}r_1\partial_\kappa \omega^{\theta\alpha\beta}\partial^\kappa \omega_{\alpha\beta\theta} + \frac{1}{3}r_1\partial_\kappa \omega^{\alpha\beta\theta}\partial^\kappa \omega^{\alpha\beta\theta}\partial^\kappa \omega^{\alpha\beta\theta}\partial^\kappa \omega^{\alpha\beta\theta}\partial^\kappa \omega^{\alpha\beta\theta}\partial^\kappa \omega^{\alpha\beta\theta}\partial^\kappa \omega^{\alpha\beta\theta}\partial^\kappa \omega^{\alpha\beta\theta}\partial^\kappa \omega^{\alpha\beta\theta$	$\frac{2}{s} r_1  \partial^\beta \omega_\alpha^{\alpha \lambda}  \partial_\lambda \omega_{\alpha}^{\ \prime} - \frac{8}{s}  r_1  \partial^\beta \omega_\alpha^{\ \lambda \alpha}  \partial_\lambda \omega_{\alpha}^{\ \prime} - r_1  \partial_\alpha \omega_\alpha^{\ \prime}  \partial_\lambda \omega_{\theta}^{\ \prime} + r_1  \partial_\theta \omega_\alpha^{\ \prime}  \partial_\lambda \omega_{\theta}^{\ \prime}  \partial_\lambda \omega_{\theta}^{\ \prime}  \partial_\alpha \omega_\alpha^{\ \prime}  \partial_\alpha \omega_$
--------------------	--	--	---	---	--	--	---	--

$f_{1^-}^{\#2} \alpha$	0	0	0	<u>i kt1</u> 3	$\tfrac{1}{3}\bar{l}\sqrt{2}kt_1$	0	$\frac{2k^2t_1}{3}$
$f_{1^{-}}^{\#1}$	0	0	0	0	0	0	0
$\omega_{1^{-}}^{\#2}{}_{\alpha}$	0	0	0	$\frac{t_1}{3\sqrt{2}}$	€ <del>1</del> 7	0	$-\frac{1}{3}i\sqrt{2}kt_1$
$\omega_{1^{\bar{-}}\alpha}^{\#1}$	0	0	0	$\frac{t_1}{6}$	$\frac{t_1}{3\sqrt{2}}$	0	$-\frac{1}{3}$ $\bar{l}$ $k$ $t_1$
$f_{1}^{\#1}\!$	$-\frac{ikt_1}{\sqrt{2}}$	0	0	0	0	0	0
$\omega_{1}^{\#2}{}_{+}$	$-\frac{t_1}{\sqrt{2}}$	0	0	0	0	0	0
$\omega_1^{\#1}{}_+\alpha\beta$	$k^2 r_1 - \frac{t_1}{2}$	$-\frac{t_1}{\sqrt{2}}$	$\frac{i k t_1}{\sqrt{2}}$	0	0	0	0
	$\omega_{1}^{\#1} + \alpha^{eta}$	$\omega_1^{\#2} + ^{\alpha\beta}$	$f_{1+}^{#1} + ^{\alpha\beta}$	$\omega_1^{\#_1} +^\alpha$	$\omega_1^{\#2} +^{lpha}$	$f_{1^-}^{\#1} +^\alpha$	$f_1^{\#2} +^{lpha}$



Ţ

 $\sigma_{0}^{\#1} == 0$ 

Source constraints SO(3) irreps J

 $\tau_{0}^{\#1} == 0$ 

m

 $\tau_{1}^{\#1}{}^{\alpha} == 0$ 

 $\sim$ 

 $= \sigma_{1}^{\#2\alpha}$ 

 $\sigma_{1}^{\#1}{}^{\alpha}$ 

Μ

 $^{3} + ik \sigma_{1}^{\#2}\alpha\beta == 0$ 

 $\tau_{1}^{\#1}\alpha\beta$ 

 $\sim$ 

 $\tau_{1}^{\#2}{}^{\alpha} + 2\,\bar{i}\,k\,\,\sigma_{1}^{\#1}{}^{\alpha} == 0$ 

 $\vdash$ 

 $\tau_{0}^{\#2} == 0$ 

	$\omega_{2^{+}\alpha\beta}^{\#1}$	$f_{2}^{\#1}{}_{\alpha\beta}$	$\omega_{2}^{\#1}{}_{\alpha\beta\chi}$
$\omega_{2^{+}}^{\sharp 1}\dagger^{\alpha\beta}$	<u>t</u> 1 2	$-\frac{ikt_1}{\sqrt{2}}$	0
$f_{2+}^{#1} \dagger^{\alpha\beta}$	$\frac{i k t_1}{\sqrt{2}}$	$k^2 t_1$	0
$\omega_2^{\#1} \dagger^{\alpha\beta\chi}$	0	0	$k^2 r_1 + \frac{t_1}{2}$

0	0	0	0		
0	0	0	0		
0	0	0	0		
$\sigma_{0}^{\#1}\dagger$	$\tau_{0}^{\#1} +$	$\tau_{0}^{\#2}$ †	$\sigma_{0}^{\#1} +$		
		$^{\#1}_{2^-}\alpha\beta\chi$	0	0	2

 $\begin{array}{c|c} 0 & 0 \\ -\frac{t}{1} \end{array}$ 

 $\sigma_{0^{\text{-}}}^{\#1}$ 

 $\sigma_{0}^{\#1} \ \tau_{0}^{\#1} \ \tau_{0}^{\#2}$ 

0

5

 $\tau_{2+}^{\#1}\alpha\beta - 2ik \ \sigma_{2+}^{\#1}\alpha\beta == 0$ 

Total #:

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

	Massive partic	le
? /	Pole residue:	$-\frac{1}{r_1} > 0$
$J^P = 2^-$	Polarisations:	5
$k^{\mu}$	Square mass:	$-\frac{t_1}{2r_1} >$
?	Spin:	2
	Parity:	Odd

(No massless particles)

## $\frac{\text{Unitarity conditions}}{r_1 < 0 \&\& t_1 > 0}$