Lagrangian density	$-2\beta_1^2 \omega_{\alpha\chi\beta} \omega^{\alpha\beta\chi} - 2\beta_1^2 \omega_{\chi}^{\chi\delta} \omega_{\chi\delta}^{\alpha} - 2\beta_1^2 \omega_{\chi}^{\chi} \partial_{\beta} f^{\alpha\beta} -$	$2{\beta_1}^2{\omega_\alpha}^\delta{\partial_\beta} f^{\alpha\beta} - 4{\beta_1}^2f^{\alpha\beta}{\partial_\beta} {\omega_\alpha}^\chi + 4{\beta_1}^2{\partial_\beta} {\omega^{\alpha\beta}}^\alpha +$	$\frac{2}{3}  \partial^{\alpha} \omega^{\beta \zeta}_{\chi}  \partial_{\beta} \omega_{\zeta\alpha}^{\chi} + 2  \beta_{1}^{2}  \omega^{\chi}_{\beta \chi}  \partial^{\beta} f^{\alpha}_{\alpha} + 2  \beta_{1}^{2}  \omega^{\delta}_{\beta \delta}  \partial^{\beta} f^{\alpha}_{\alpha} -$	$2\beta_1^2 \partial_{\beta} f_{\chi}^{\chi} \partial^{\beta} f^{\alpha} + 4\beta_1^2 f^{\alpha\beta} \partial_{\chi} \omega_{\alpha\beta}^{\chi} - 4\beta_1^2 f^{\alpha} \partial_{\chi} \omega^{\beta\chi}_{\beta} -$	$\frac{2}{3} \partial_{\beta} \omega_{\zeta\alpha}^{       $	$\beta_1^2 \partial_{\chi} f_{\beta}^{\ \delta} \partial^{\chi} f_{\delta}^{\ \beta} + \beta_1^2 \partial_{\chi} f^{\delta}_{\ \beta} \partial^{\chi} f_{\delta}^{\ \beta} + \frac{2}{3} \partial_{\chi} \omega^{\beta \zeta \alpha} \partial^{\chi} \omega_{\zeta \alpha \beta} +$	$\frac{1}{3}  \partial_\chi \omega^{\zeta \alpha \beta}  \partial^\chi \omega_{\zeta \alpha \beta} + 4  \beta_1^{ 2}  \partial^\beta f^\alpha_{\ \alpha}  \partial_\delta f_{\ \beta}^{\ \delta} - 2  \beta_1^{ 2}  \partial_\beta f_{\ \chi}^{\ \beta}  \partial_\delta f^{\chi \delta} +$	$\frac{2}{3}\partial^{\beta}\omega_{\alpha}^{\delta\zeta}\partial_{\delta}\omega_{\zeta\beta}^{\alpha} - \frac{2}{3}\partial^{\beta}\omega_{\alpha}^{\zeta\delta}\partial_{\delta}\omega_{\zeta\beta}^{\alpha} - \beta_{1}^{2}\partial^{\chi}f_{\zeta}^{\beta}\partial^{\zeta}f_{\beta\chi}^{\gamma} -$	$\beta_1^2 \partial^{\chi} f_{\zeta}^{\beta} \partial^{\zeta} f_{\chi\beta} + \beta_1^2 \partial^{\chi} f_{\delta\zeta} \partial^{\zeta} f^{\delta}_{\chi} - \beta_1^2 \partial^{\chi} f_{\zeta\delta} \partial^{\zeta} f^{\delta}_{\chi}$	Added source term: $f^{\alpha\beta} \ _l \ , + \omega^{\alpha\beta\chi} \ _d \ ,$	$\alpha \beta \lambda = \alpha \beta \lambda$	
?、		$k^{\mu}$	? 	· —?	Pole	resi	ic po due:	$\frac{1}{\beta_1^2}$	<del>,</del> > 0		$\beta_1 < 0 \parallel \beta_1 > 0$	)   

$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1		ı					
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$f_{1^-}^{\#2}$	0	0	0	0	0	0	0
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$f_{1^-}^{\#1} \alpha$	0	0	0	0	0	0	0
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\omega_{1}^{\#2}{}_{\alpha}$	0	0	0	0	0	0	0
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\omega_{1^{^{-}}\alpha}^{\#1}$	0	0	0	0	0	0	0
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		0	0	0	0	0	0	0
$ \begin{array}{c cccc} \omega_{1+}^{\#1} \\ +\alpha\beta & 0 \\ +\alpha\beta & 0 \\ 2 + \alpha & 0 \\ 2 + \alpha & 0 \\ 2 + \alpha & 0 \end{array} $	$\omega_{1}^{\#2}{}_{+}$	0	0	0	0	0	0	0
+ + + + 2 2 2 2	$\omega_{1}^{\#1}{}_{\alpha\beta}$	0	0	0	0	0	0	0
44 44 3 3 4 4		$\omega_1^{\#1} \dagger^{lphaeta}$	$\omega_1^{\#2} + \alpha^{\beta}$	$f_1^{\#1} + \alpha \beta$	$\omega_{1}^{\#_1} +^{\alpha}$	$\omega_{1}^{\#2} +^{lpha}$	$f_{1}^{\#1} \dagger^{\alpha}$	$f_{1}^{#2} \dagger^{\alpha}$

$ au_{1}^{\#2}$	0	0	0	0	0	0	0
${\mathfrak t}_{1^-}^{\#1}$	0	0	0	0	0	0	0
$\sigma_{1^{-}lpha}^{\#2}$	0	0	0	0	0	0	0
$\sigma_{1^{-}\alpha}^{\#1}$	0	0	0	0	0	0	0
$\tau_{1}^{\#1}\alpha\beta$	0	0	0	0	0	0	0
$\alpha \beta \sigma_{1}^{#2}$	0	0	0	0	0	0	0
$\sigma_{1}^{\#1}$	0	0	0	0	0	0	0
	$\frac{1}{1} + \alpha \beta$	$\pm 4\alpha\beta$	$\frac{1}{1} + \alpha \beta$	$\sigma_{1}^{\#_1} +^\alpha$	$\sigma_{1}^{\#2} +^{\alpha}$	$\frac{1}{1} + \alpha$	$\tau_{1}^{\#2} +^{\alpha}$
	$\sigma_1^{\#1}$ †	$\sigma_1^{\#2}$ †	$\tau_1^{\#1}$	$\sigma_1^{\#}$	$\sigma_1^{\scriptscriptstyle \#}$	$\tau_{1}^{\#1}$	$\tau_1^{\#}$

Source constraints SO(3) irreps #

J

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

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

 $\sim$ 

 $t_1^{\#2}\alpha == 0$ 

 $\sim$ 

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

 $\sim$ 

 $\sigma_{1}^{\#2\alpha} == 0$ 

3

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

 $\sim$ 

 $\tau_1^{\#1}{}^{\alpha\beta} == 0$ 

 $\sim$ 

 $\sigma_1^{\#2}\alpha\beta==0$ 

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

				U		, -
×				$f_{0}^{#2}$ †	0	0
$\omega_{2^{-}}^{\#1}{}_{lphaeta\chi}$	0	0	0	$\omega_{0}^{\sharp 1}$ †	0	0
3						
$f_{2}^{\#1}$	0	$2 \beta_1^2 k^2$	0		$\sigma_{0^{+}}^{\#1}$	$\tau_{0}^{\#1}$
		2 /		$\sigma_{0^{+}}^{\#1}$ †	0	0
$\omega_{2}^{\#1}{}_{\alpha\beta}$	0	0	0	$\tau_{0}^{\#1}$ †	0	$-\frac{1}{4\beta_1^2 k^2}$
	$+^{\alpha\beta}$	$\dagger^{\alpha \beta}$	$\alpha \beta \chi$	$ au_{0^{+}}^{\#2} +$	0	0
	$\omega_2^{\#1}$	$f_{2}^{\#1}$	$\omega_{2}^{\#1}$ $\dagger$	$\sigma_{0}^{\sharp 1}$ †	0	0

33

2

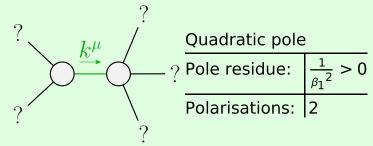
 $\sigma_{2}^{\#1}\alpha\beta=0$ Total #:

 $\sigma_{2}^{\#1}\alpha\beta\chi == 0$ 

	$\sigma_{2^{+}\alpha\beta}^{\#1}$	$\tau_{2}^{\#1}_{\alpha\beta}$	$\sigma_{2}^{\#1}{}_{\alpha\beta\chi}$
$\sigma_{2}^{\sharp 1} \dagger^{\alpha \beta}$	0	0	0
$\tau_{2+}^{\#1}\dagger^{\alpha\beta}$	0	$\frac{1}{2\beta_1^2 k^2}$	0
$\sigma_2^{\#1} \dagger^{\alpha\beta\chi}$	0	0	0

	$\omega_0^{\sharp 1}$	$f_{0^{+}}^{#1}$	$f_{0}^{#2}$	$\omega_0^{\#1}$
$\omega_{0^+}^{\sharp 1}$ †	0	0	0	0
$f_{0}^{#1}$ †	0	$-4\beta_1^2k^2$	0	0
$f_{0^{+}}^{#2}$ †	0	0	0	0
$\omega_0^{\sharp 1}$ †	0	0	0	$k^2$

_	$\sigma_{0}^{\#1}$	$\tau_{0}^{\#1}$	$ au_0^{\#2}$	$\sigma_0^{\#1}$
7 <sub>0</sub> + †	0	0	0	0
$\tau_{0}^{\#1}$ †	0	$-\frac{1}{4\beta_1^2 k^2}$	0	0
$\tau_{0}^{\#2}$ †	0	0	0	0
$\sigma_0^{\#1}$ †	0	0	0	$\frac{1}{k^2}$



## (No massive particles)

Unitarity conditions