

$\sigma_{2+}^{\#1} + \alpha\beta$	$\tau_{2+}^{\#1} + \alpha\beta$	$\sigma_{2-}^{\#1} - \alpha\beta\chi$
0	0	0
$\tau_{2+}^{\#1} + \alpha\beta$	0	$\frac{1}{2\beta_1 k^2}$
$\sigma_{2-}^{\#1} + \alpha\beta\chi$	0	0

$\sigma_{0+}^{\#1} +$	$\tau_{0+}^{\#1} +$	$\tau_{0+}^{\#2} +$	$\sigma_{0-}^{\#1} +$
0	0	0	0
$\tau_{0+}^{\#1} +$	0	$-\frac{1}{4\beta_1 k^2}$	0
$\tau_{0+}^{\#2} +$	0	0	0
$\sigma_{0-}^{\#1} +$	0	0	$\frac{1}{\alpha_3 k^2}$

$\omega_{0+}^{\#1} +$	$f_{0+}^{\#1} +$	$f_{0+}^{\#2} +$	$\omega_{0-}^{\#1} +$
0	0	0	0
$f_{0+}^{\#1} +$	0	$-4\beta_1 k^2$	0
$f_{0+}^{\#2} +$	0	0	0
$\omega_{0-}^{\#1} +$	0	0	$\alpha_3 k^2$

$\omega_{2+}^{\#1} + \alpha\beta$	$f_{2+}^{\#1} + \alpha\beta$	$\omega_{2-}^{\#1} - \alpha\beta\chi$
0	0	0
$f_{2+}^{\#1} + \alpha\beta$	0	$2\beta_1 k^2$
$\omega_{2-}^{\#1} + \alpha\beta\chi$	0	0

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

$\omega_{1+}^{\#1} + \alpha\beta$	$\omega_{1+}^{\#2} + \alpha\beta$	$f_{1+}^{\#1} + \alpha\beta$	$\omega_{1-}^{\#1} - \alpha$	$\omega_{1-}^{\#2} - \alpha$	$f_{1-}^{\#1} - \alpha$	$f_{1-}^{\#2} - \alpha$
0	0	0	0	0	0	0
$\omega_{1+}^{\#2} + \alpha\beta$	0	0	0	0	0	0
$f_{1+}^{\#1} + \alpha\beta$	0	0	0	0	0	0
$\omega_{1-}^{\#1} + \alpha$	0	0	0	0	0	0
$\omega_{1-}^{\#2} + \alpha$	0	0	0	0	0	0
$f_{1-}^{\#1} + \alpha$	0	0	0	0	0	0
$f_{1-}^{\#2} + \alpha$	0	0	0	0	0	0

### Lagrangian density

$$\begin{aligned}
 & -2\beta_1 \omega_{\alpha\chi\beta} \omega^{\alpha\beta\chi} - 2\beta_1 \omega_{\alpha}^{\chi\delta} \omega_{\chi\delta}^{\alpha} - 2\beta_1 \omega_{\alpha}^{\chi} \omega_{\chi}^{\alpha} \partial_{\beta} f^{\alpha\beta} - 2\beta_1 \omega_{\alpha}^{\delta} \partial_{\beta} f^{\alpha\beta} - \\
 & 4\beta_1 f^{\alpha\beta} \partial_{\beta} \omega_{\alpha}^{\chi} + 4\beta_1 \partial_{\beta} \omega_{\alpha}^{\chi} + \frac{2}{3} \alpha_3 \partial^{\alpha} \omega^{\beta\zeta} \partial_{\beta} \omega_{\zeta\alpha}^{\chi} + \\
 & 2\beta_1 \omega_{\beta}^{\chi} \partial^{\beta} f_{\alpha}^{\alpha} + 2\beta_1 \omega_{\beta}^{\delta} \partial^{\beta} f_{\alpha}^{\alpha} - 2\beta_1 \partial_{\beta} f_{\chi}^{\chi} \partial^{\beta} f_{\alpha}^{\alpha} + 4\beta_1 f^{\alpha\beta} \partial_{\chi} \omega_{\alpha}^{\chi} \omega_{\beta}^{\chi} - \\
 & 4\beta_1 f_{\alpha}^{\alpha} \partial_{\chi} \omega^{\beta\chi} \omega_{\beta}^{\chi} - \frac{2}{3} \alpha_3 \partial_{\beta} \omega_{\zeta\alpha}^{\chi} \partial^{\chi} \omega^{\beta\zeta\alpha} - \frac{1}{3} \alpha_3 \partial_{\beta} \omega_{\zeta\alpha}^{\chi} \partial_{\chi} \omega^{\zeta\alpha\beta} + \\
 & 4\beta_1 \omega_{\alpha\chi\beta} \partial^{\chi} f^{\alpha\beta} + \beta_1 \partial_{\chi} f_{\beta}^{\delta} \partial^{\delta} f_{\delta}^{\beta} + \beta_1 \partial_{\chi} f_{\beta}^{\delta} \partial^{\delta} f_{\delta}^{\beta} + \\
 & \frac{2}{3} \alpha_3 \partial_{\chi} \omega^{\beta\zeta\alpha} \partial^{\chi} \omega_{\zeta\alpha\beta} + \frac{1}{3} \alpha_3 \partial_{\chi} \omega^{\zeta\alpha\beta} \partial^{\chi} \omega_{\zeta\alpha\beta} + 4\beta_1 \partial^{\beta} f_{\alpha}^{\alpha} \partial_{\delta} f_{\beta}^{\delta} - \\
 & 2\beta_1 \partial_{\beta} f_{\chi}^{\beta} \partial^{\beta} f_{\chi}^{\delta} + \frac{2}{3} \alpha_3 \partial^{\beta} \omega_{\alpha}^{\delta\zeta} \partial_{\delta} \omega_{\zeta\beta}^{\alpha} - \frac{2}{3} \alpha_3 \partial^{\beta} \omega_{\alpha}^{\zeta\delta} \partial_{\delta} \omega_{\zeta\beta}^{\alpha} - \\
 & \beta_1 \partial^{\chi} f_{\zeta}^{\beta} \partial^{\delta} f_{\beta\chi} - \beta_1 \partial^{\chi} f_{\zeta}^{\beta} \partial^{\delta} f_{\chi\beta} + \beta_1 \partial^{\chi} f_{\delta\zeta} \partial^{\delta} f_{\chi}^{\delta} - \beta_1 \partial^{\chi} f_{\zeta\delta} \partial^{\delta} f_{\chi}^{\delta} \\
 \end{aligned}$$

Added source term:  $f^{\alpha\beta} \tau_{\alpha\beta} + \omega^{\alpha\beta\chi} \sigma_{\alpha\beta\chi}$

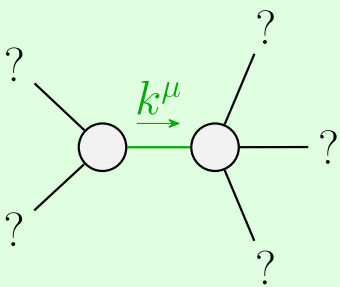
### Source constraints

SO(3) irreps	#
$\tau_{0+}^{\#2} == 0$	1
$\sigma_{0+}^{\#1} == 0$	1
$\tau_{1-}^{\#2\alpha} == 0$	3
$\tau_{1-}^{\#1\alpha} == 0$	3
$\sigma_{1-}^{\#2\alpha} == 0$	3
$\sigma_{1-}^{\#1\alpha} == 0$	3
$\tau_{1+}^{\#1\alpha\beta} == 0$	3
$\sigma_{1+}^{\#2\alpha\beta} == 0$	3
$\sigma_{1+}^{\#1\alpha\beta} == 0$	3
$\sigma_{2+}^{\#1\alpha\beta} == 0$	5
$\sigma_{2-}^{\#1\alpha\beta\chi} == 0$	5
Total #:	33

### Unitarity conditions

$$\beta_1 > 0$$

(No massive particles)



Quadratic pole

Pole residue:  $\frac{1}{\beta_1} > 0$

Polarisations: 2