

$\omega_{1+}^{\#1}+\alpha\beta$	$\omega_{1+}^{\#2}+\alpha\beta$	$f_{1+}^{\#1}+\alpha\beta$	$\omega_{1-}^{\#1}+\alpha$	$\omega_{1-}^{\#2}+\alpha$	$f_{1-}^{\#1}+\alpha$	$f_{1-}^{\#2}+\alpha$
$\kappa^2(2r_1+r_5)-\frac{t_1}{2}$	$-\frac{t_1}{\sqrt{2}}$	$-\frac{t_1}{\sqrt{2}}$	0	0	0	0
$-\frac{t_1}{\sqrt{2}}$	0	0	0	0	0	0
$\frac{ik t_1}{\sqrt{2}}$	0	0	0	0	0	0
0	0	0	$\kappa^2(r_1+r_5)+\frac{t_1}{6}$	$\frac{t_1}{3\sqrt{2}}$	0	$\frac{ik t_1}{3}$
0	0	0	0	$\frac{t_1}{3}$	0	$\frac{1}{3}i\sqrt{2}\kappa t_1$
0	0	0	$-\frac{1}{3}ikt_1$	$-\frac{1}{3}i\sqrt{2}\kappa t_1$	0	$\frac{2\kappa^2 t_1}{3}$

Lagrangian density

$$-\frac{1}{3}t_1\omega_{\kappa\alpha}^{\prime\alpha'}\omega_{\kappa\alpha}^{\prime\kappa}-t_1\omega_{\kappa\lambda}^{\prime\kappa\lambda}\omega_{\kappa\lambda}^{\prime\lambda}-r_5\partial_\lambda\omega_{\kappa\lambda}^{\prime\kappa}\partial^\lambda\omega_{\lambda\alpha}^{\prime\alpha}-\frac{2}{3}r_1\partial^\beta\omega^{\theta\alpha}_{\kappa}\partial_\theta\omega_{\alpha\beta}^{\prime\kappa}-\frac{1}{2}t_1\omega_{\theta\kappa}^{\prime\alpha}\partial^\kappa f_{\alpha}^{\prime\theta}-\frac{1}{2}t_1\partial^\alpha f_{\kappa\theta}^{\prime\theta}\partial^\kappa f_{\alpha}^{\prime\theta}-\frac{1}{2}t_1\partial^\alpha f_{\kappa\theta}^{\prime\lambda}\partial^\kappa f_{\alpha\lambda}^{\prime\theta}+\frac{2}{3}r_1\partial_\theta\omega_{\alpha\beta}^{\prime\kappa}\partial_\kappa\omega^{\alpha\beta\theta}+\frac{2}{3}r_1\partial_\theta\omega_{\alpha\beta}^{\prime\kappa}\partial_\kappa\omega^{\theta\alpha\beta}-r_5\partial_\alpha\omega_{\lambda\theta}^{\prime\alpha}\partial_\kappa\omega^{\theta\kappa\lambda}+r_5\partial_\theta\omega_{\lambda\alpha}^{\prime\alpha}\partial_\kappa\omega^{\theta\kappa\lambda}-\frac{1}{2}t_1\partial^\alpha f_{\theta\kappa}^{\prime\theta}\partial^\kappa f_{\alpha}^{\prime\theta}-\frac{1}{2}t_1\partial^\alpha f_{\kappa\theta}^{\prime\theta}\partial^\kappa f_{\alpha}^{\prime\theta}-\frac{1}{2}t_1\partial^\alpha f_{\kappa}^{\prime\lambda}\partial^\kappa f_{\alpha\lambda}^{\prime\theta}+\frac{1}{3}t_1\omega_{\kappa\alpha}^{\prime\alpha}\partial^\kappa f_{\lambda}^{\prime\alpha}+\frac{1}{3}t_1\omega_{\kappa\lambda}^{\prime\lambda}\partial^\kappa f_{\lambda}^{\prime\alpha}+\frac{2}{3}t_1\partial^\alpha f_{\kappa\alpha}^{\prime\theta}\partial^\kappa f_{\lambda}^{\prime\theta}-\frac{1}{3}t_1\partial_\kappa f_{\lambda}^{\prime\theta}\partial^\kappa f_{\lambda}^{\prime\alpha}+\frac{1}{2}t_1\omega_{\lambda\kappa\theta}^{\prime\theta}\partial^\kappa f_{\lambda}^{\prime\theta}-\frac{1}{2}t_1\omega_{\lambda\alpha}^{\prime\alpha}\partial^\kappa f_{\lambda}^{\prime\theta}-\frac{1}{3}t_1\omega_{\lambda\lambda}^{\prime\lambda}\partial^\kappa f_{\kappa}^{\prime\alpha}+\frac{1}{2}t_1\partial^\alpha f_{\kappa}^{\prime\lambda}\partial^\kappa f_{\lambda\alpha}^{\prime\theta}+\frac{1}{2}t_1\partial_\kappa f_{\theta}^{\prime\lambda}\partial^\kappa f_{\lambda}^{\prime\theta}+\frac{1}{2}t_1\partial_\kappa f_{\theta}^{\prime\lambda}\partial^\kappa f_{\lambda}^{\prime\theta}-\frac{1}{3}t_1\partial^\alpha f_{\lambda}^{\prime\alpha}\partial^\kappa f_{\lambda\kappa}^{\prime\theta}+\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{2}{3}r_1\partial^\beta\omega_{\lambda}^{\prime\alpha\lambda}\partial_\lambda\omega_{\alpha\beta}^{\prime\prime}-\frac{8}{3}r_1\partial^\beta\omega_{\lambda}^{\prime\lambda\alpha}\partial_\lambda\omega_{\alpha\beta}^{\prime\prime}+r_5\partial_\alpha\omega_{\lambda\theta}^{\prime\alpha}\partial^\lambda\omega^{\theta\kappa}_{\kappa}-r_5\partial_\theta\omega_{\lambda\alpha}^{\prime\alpha}\partial^\lambda\omega^{\theta\kappa}_{\kappa}$$

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

$\sigma_{1+}^{\#1}+\alpha\beta$	$\sigma_{1+}^{\#2}+\alpha\beta$	$\tau_{1+}^{\#1}+\alpha\beta$	$\sigma_{1-}^{\#1}+\alpha$	$\sigma_{1-}^{\#2}+\alpha$	$\tau_{1-}^{\#1}+\alpha$	$\tau_{1-}^{\#2}+\alpha$
0	$-\frac{\sqrt{2}}{t_1+k^2t_1}$	$-\frac{i\sqrt{2}\kappa}{t_1+k^2t_1}$	0	0	0	0
$-\frac{\sqrt{2}}{t_1+k^2t_1}$	$\frac{-2k^2(2r_1+r_5)+t_1}{(1+k^2)^2t_1^2}$	$\frac{-2ik^3(2r_1+r_5)+ikt_1}{(1+k^2)^2t_1^2}$	0	0	0	0
$\frac{i\sqrt{2}\kappa}{t_1+k^2t_1}$	$\frac{i(2k^3(2r_1+r_5)-\kappa t_1)}{(1+k^2)^2t_1^2}$	$\frac{-2k^4(2r_1+r_5)+k^2t_1}{(1+k^2)^2t_1^2}$	0	0	0	0
0	0	0	$\frac{1}{k^2(r_1+r_5)}$	$-\frac{1}{\sqrt{2}(k^2+2k^4)(r_1+r_5)}$	0	$-\frac{i}{k(1+2k^2)(r_1+r_5)}$
0	0	0	$-\frac{1}{\sqrt{2}(k^2+2k^4)(r_1+r_5)}$	$\frac{6k^2(r_1+r_5)+t_1}{2(k+2k^3)^2(r_1+r_5)t_1}$	0	$\frac{i(6k^2(r_1+r_5)+t_1)}{\sqrt{2}\kappa(1+2k^2)^2(r_1+r_5)t_1}$
0	0	0	0	0	0	0
0	0	0	$\frac{i}{k(1+2k^2)(r_1+r_5)}$	$-\frac{i(6k^2(r_1+r_5)+t_1)}{\sqrt{2}\kappa(1+2k^2)^2(r_1+r_5)t_1}$	0	$\frac{6k^2(r_1+r_5)+t_1}{(1+2k^2)^2(r_1+r_5)t_1}$

Source constraints

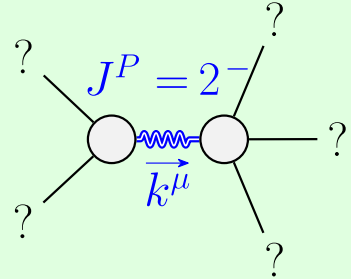
SO(3) irreps	#
$\sigma_{0+}^{\#1}==0$	1
$\tau_{0+}^{\#1}==0$	1
$\tau_{0+}^{\#2}==0$	1
$\tau_{1-}^{\#2\alpha}+2ik\sigma_{1-}^{\#2\alpha}==0$	3
$\tau_{1-}^{\#1\alpha}==0$	3
$\tau_{1+}^{\#1\alpha\beta}+ik\sigma_{1+}^{\#2\alpha\beta}==0$	3
$\tau_{2+}^{\#1\alpha\beta}-2ik\sigma_{2+}^{\#1\alpha\beta}==0$	5
Total #:	17

$\sigma_{2+}^{\#1}+\alpha\beta$	$\sigma_{2+}^{\#1}+\alpha\beta$	$\tau_{2+}^{\#1}+\alpha\beta$	$\sigma_{2-}^{\#1}+\alpha\beta\chi$
$\frac{2}{(1+2\kappa^2)^2t_1}$	$-\frac{2i\sqrt{2}\kappa}{(1+2\kappa^2)^2t_1}$	0	0
$\frac{2i\sqrt{2}\kappa}{(1+2\kappa^2)^2t_1}$	$\frac{4\kappa^2}{(1+2\kappa^2)^2t_1}$	0	0
0	0	$\frac{2\kappa^2r_1+t_1}{2}$	2

$\omega_{2+}^{\#1}+\alpha\beta$	$f_{2+}^{\#1}+\alpha\beta$	$\omega_{2-}^{\#1}+\alpha\beta\chi$
$\frac{t_1}{2}$	$\frac{ik t_1}{\sqrt{2}}$	0
$-\frac{ik t_1}{\sqrt{2}}$	$\kappa^2 t_1$	0
0	0	$\kappa^2 r_1+\frac{t_1}{2}$

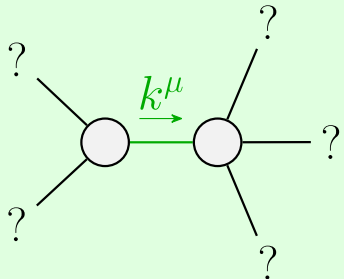
$\sigma_{0+}^{\#1}+\dagger$	$\tau_{0+}^{\#1}+\dagger$	$\tau_{0+}^{\#2}+\dagger$	$\sigma_{0-}^{\#1}+\dagger$
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	$-\frac{1}{t_1}$

$\omega_{0+}^{\#1}+\dagger$	$f_{0+}^{\#1}+\dagger$	$f_{0+}^{\#2}+\dagger$	$\omega_{0-}^{\#1}+\dagger$
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	$-t_1$



Massive particle

Pole residue:	$-\frac{1}{r_1} > 0$
Polarisations:	5
Square mass:	$-\frac{t_1}{2r_1} > 0$
Spin:	2
Parity:	Odd



Quadratic pole

Pole residue:	$-\frac{1}{(r_1+r_5)t_1^2} > 0$
Polarisations:	2

Unitarity conditions

$$r_1 < 0 \ \&\& \ r_5 < -r_1 \ \&\& \ t_1 > 0$$