

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

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

	$\omega_{2+}^{\#1} \alpha\beta$	$f_{2+}^{\#1} \alpha\beta$	$\omega_{2-}^{\#1} \alpha\beta\chi$
$\omega_{2+}^{\#1} \dagger \alpha\beta$	$\frac{t_1}{2}$	$-\frac{ikt_1}{\sqrt{2}}$	0
$f_{2+}^{\#1} \dagger \alpha\beta$	$\frac{ikt_1}{\sqrt{2}}$	$k^2 t_1$	0
$\omega_{2-}^{\#1} \dagger \alpha\beta\chi$	0	0	$k^2 r_1 + \frac{t_1}{2}$

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

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

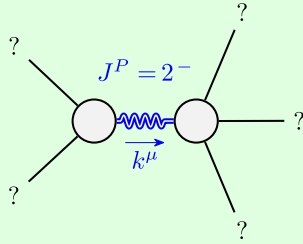
### Lagrangian density

$$\begin{aligned}
 &-t_1 \, \omega_{\, \, \kappa \alpha}^{\, \alpha \prime} \, \omega_{\, \kappa \alpha}^{\, \kappa} - \frac{1}{3} t_1 \, \omega_{\, \, \kappa \lambda}^{\, \kappa \lambda} \, \omega_{\, \kappa \lambda}^{\, \prime} + \frac{1}{3} t_1 \, \omega_{\, \kappa \lambda}^{\, \prime} \, \omega^{\kappa \lambda}_{\, \, \prime} + f^{\alpha \beta} \, \tau_{\alpha \beta} + \\
 &\omega^{\alpha \beta \chi} \, \sigma_{\alpha \beta \chi} - r_5 \partial_{\prime} \omega^{\kappa \lambda}_{\, \, \kappa} \partial^{\prime} \omega_{\, \lambda \, \alpha}^{\alpha} - \frac{2}{3} r_1 \partial^{\beta} \omega^{\theta \alpha}_{\, \, \kappa} \partial_{\theta} \omega_{\, \alpha \beta}^{\, \kappa} - \frac{2}{3} r_1 \partial_{\theta} \omega_{\, \alpha \beta}^{\, \kappa} \partial_{\kappa} \omega^{\alpha \beta \theta} + \\
 &\frac{2}{3} r_1 \partial_{\theta} \omega_{\, \alpha \beta}^{\, \kappa} \partial_{\kappa} \omega^{\theta \alpha \beta} - r_5 \partial_{\alpha} \omega_{\, \lambda \, \theta}^{\alpha} \partial_{\kappa} \omega^{\theta \kappa \lambda} + r_5 \partial_{\theta} \omega_{\, \lambda \, \alpha}^{\alpha} \partial_{\kappa} \omega^{\theta \kappa \lambda} - r_5 \partial_{\alpha} \omega_{\, \lambda \, \theta}^{\alpha} \partial_{\kappa} \omega^{\kappa \lambda \theta} + \\
 &2 r_5 \partial_{\theta} \omega_{\, \lambda \, \alpha}^{\alpha} \partial_{\kappa} \omega^{\kappa \lambda \theta} - \frac{1}{3} t_1 \partial^{\alpha} f_{\theta \kappa} \partial^{\kappa} f_{\alpha}^{\theta} - \frac{2}{3} t_1 \partial^{\alpha} f_{\kappa \theta} \partial^{\kappa} f_{\alpha}^{\theta} - \frac{1}{3} t_1 \partial^{\alpha} f^{\lambda}_{\, \, \kappa} \partial^{\kappa} f_{\alpha \lambda} + \\
 &t_1 \, \omega_{\, \kappa \alpha}^{\alpha} \partial^{\kappa} f^{\prime}_{\, \prime} + t_1 \, \omega_{\, \kappa \lambda}^{\lambda} \partial^{\kappa} f^{\prime}_{\, \prime} + 2 t_1 \partial^{\alpha} f_{\kappa \alpha} \partial^{\kappa} f^{\prime}_{\, \prime} - t_1 \partial_{\kappa} f^{\lambda}_{\, \lambda} \partial^{\kappa} f^{\prime}_{\, \prime} + \\
 &\frac{1}{3} t_1 \, \omega_{\, \theta \kappa} \partial^{\kappa} f^{\prime \theta} + \frac{4}{3} t_1 \, \omega_{\, \iota \kappa \theta} \partial^{\kappa} f^{\prime \iota \theta} - \frac{1}{3} t_1 \, \omega_{\, \theta \iota \kappa} \partial^{\kappa} f^{\prime \iota \theta} + \frac{2}{3} t_1 \, \omega_{\, \theta \kappa \iota} \partial^{\kappa} f^{\prime \iota \theta} - \\
 &t_1 \, \omega_{\, \iota \alpha}^{\alpha} \partial^{\kappa} f^{\prime}_{\, \kappa} - t_1 \, \omega_{\, \iota \lambda}^{\lambda} \partial^{\kappa} f^{\prime}_{\, \kappa} + \frac{1}{3} t_1 \partial^{\alpha} f^{\lambda}_{\, \, \kappa} \partial^{\kappa} f_{\lambda \alpha} + \frac{1}{3} t_1 \partial_{\kappa} f_{\theta}^{\lambda} \partial^{\kappa} f_{\lambda}^{\theta} + \\
 &\frac{2}{3} t_1 \partial_{\kappa} f^{\lambda}_{\, \theta} \partial^{\kappa} f_{\lambda}^{\theta} - 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{2}{3} r_1 \partial^{\beta} \omega_{\, \prime}^{\alpha \lambda} \partial_{\lambda} \omega_{\alpha \beta}^{\prime} - \frac{8}{3} r_1 \partial^{\beta} \omega_{\, \prime}^{\lambda \alpha} \partial_{\lambda} \omega_{\alpha \beta}^{\prime} + r_5 \partial_{\alpha} \omega_{\, \lambda \, \theta}^{\alpha} \partial^{\lambda} \omega^{\theta \kappa}_{\, \, \kappa} - r_5 \partial_{\theta} \omega_{\, \lambda \, \alpha}^{\alpha} \partial^{\lambda} \omega^{\theta \kappa}_{\, \, \kappa}
 \end{aligned}$$

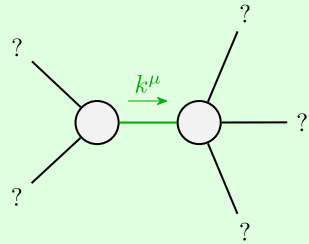
### Source constraints

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

$\sigma_{0+}^{\#1}$	$\tau_{0+}^{\#1}$	$\tau_{0+}^{\#2}$	$\sigma_{0-}^{\#1}$
$-\frac{1}{(1+2k^2)^2 t_1}$	$\frac{i \sqrt{2} k}{(1+2k^2)^2 t_1}$	0	0
$-\frac{i \sqrt{2} k}{(1+2k^2)^2 t_1}$	$-\frac{2k^2}{(1+2k^2)^2 t_1}$	0	0
0	0	0	0
$+\frac{\#1}{\sigma_{0+}}$	$+\frac{\#1}{\tau_{0+}}$	$+\frac{\#2}{\tau_{0+}}$	$+\frac{\#1}{\sigma_{0-}}$



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

Unitarity conditions

$r_1 < 0 \ \&\& \ r_5 > -2 r_1 \ \&\& \ t_1 > 0$