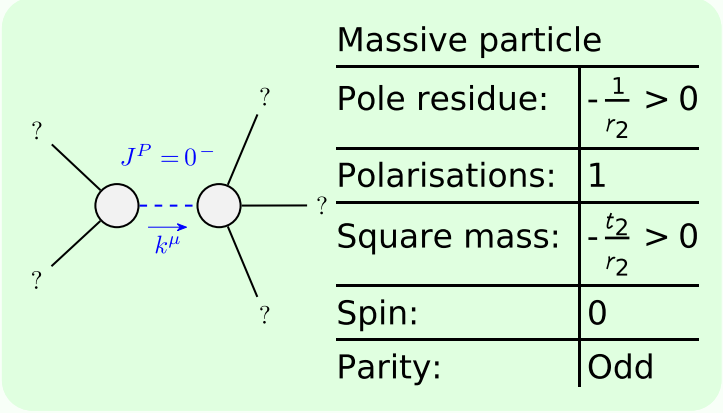


Lagrangian density

$$\begin{aligned}
&-\frac{1}{3}t_1\omega_{\kappa\alpha}^{\alpha'}\omega_{\kappa\alpha}^{\kappa}+\frac{2}{3}t_3\omega_{\kappa\alpha}^{\alpha'}\omega_{\kappa\alpha}^{\kappa}-\frac{1}{3}t_1\omega_{\kappa\lambda}^{\kappa\lambda}\omega_{\kappa\lambda}^{\lambda'}+\frac{2}{3}t_2\omega_{\kappa\lambda}^{\kappa\lambda}\omega_{\kappa\lambda}^{\lambda'}+ \\
&\frac{1}{3}t_1\omega_{\kappa\lambda}^{\lambda'}\omega_{\kappa\lambda}^{\kappa\lambda}+\frac{1}{3}t_2\omega_{\kappa\lambda}^{\lambda'}\omega_{\kappa\lambda}^{\kappa\lambda}+f^{\alpha\beta}\tau_{\alpha\beta}+\omega^{\alpha\beta\chi}\sigma_{\alpha\beta\chi}+ \\
&\frac{2}{3}r_2\partial^\beta\omega_{\kappa}^{\theta\alpha}\partial_\theta\omega_{\alpha\beta}^{\kappa}-\frac{1}{3}r_2\partial_\theta\omega_{\alpha\beta}^{\kappa}\partial_\kappa\omega^{\alpha\beta\theta}-\frac{2}{3}r_2\partial_\theta\omega_{\alpha\beta}^{\kappa}\partial_\kappa\omega^{\theta\alpha\beta}- \\
&\frac{1}{3}t_1\partial^\alpha f_{\theta\kappa}\partial^\kappa f_\alpha^\theta+\frac{1}{6}t_2\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}{6}t_2\partial^\alpha f_{\kappa\theta}\partial^\kappa f_\alpha^\theta- \\
&\frac{1}{3}t_1\partial^\alpha f_\kappa^\lambda\partial^\kappa f_{\alpha\lambda}^\lambda+\frac{1}{6}t_2\partial^\alpha f_\kappa^\lambda\partial^\kappa f_{\alpha\lambda}^\lambda+\frac{1}{3}t_1\omega_{\kappa\alpha}^\alpha\partial^\kappa f_{\lambda}^{\lambda'}-\frac{2}{3}t_3\omega_{\kappa\alpha}^\alpha\partial^\kappa f_{\lambda}^{\lambda'}+ \\
&\frac{1}{3}t_1\omega_{\kappa\lambda}^\lambda\partial^\kappa f_{\lambda}^{\lambda'}-\frac{2}{3}t_3\omega_{\kappa\lambda}^\lambda\partial^\kappa f_{\lambda}^{\lambda'}+\frac{2}{3}t_1\partial^\alpha f_{\kappa\alpha}\partial^\kappa f_{\lambda}^{\lambda'}-\frac{4}{3}t_3\partial^\alpha f_{\kappa\alpha}\partial^\kappa f_{\lambda}^{\lambda'}- \\
&\frac{1}{3}t_1\partial_{\kappa f_\lambda}^\lambda\partial^\kappa f_{\lambda}^{\lambda'}+\frac{2}{3}t_3\partial_{\kappa f_\lambda}^\lambda\partial^\kappa f_{\lambda}^{\lambda'}+\frac{1}{3}t_1\omega_{\lambda\theta\kappa}\partial^\kappa f_{\lambda}^{\lambda'}+\frac{1}{3}t_2\omega_{\lambda\theta\kappa}\partial^\kappa f_{\lambda}^{\lambda'}+ \\
&\frac{4}{3}t_1\omega_{\lambda\theta\kappa}\partial^\kappa f_{\lambda}^{\lambda'}-\frac{2}{3}t_2\omega_{\lambda\theta\kappa}\partial^\kappa f_{\lambda}^{\lambda'}-\frac{1}{3}t_1\omega_{\theta\lambda\kappa}\partial^\kappa f_{\lambda}^{\lambda'}-\frac{1}{3}t_2\omega_{\theta\lambda\kappa}\partial^\kappa f_{\lambda}^{\lambda'}+ \\
&\frac{2}{3}t_1\omega_{\theta\kappa\lambda}\partial^\kappa f_{\lambda}^{\lambda'}+\frac{2}{3}t_2\omega_{\theta\kappa\lambda}\partial^\kappa f_{\lambda}^{\lambda'}-\frac{1}{3}t_1\omega_{\lambda\alpha}^\alpha\partial^\kappa f_{\kappa}^{\lambda'}+\frac{2}{3}t_3\omega_{\lambda\alpha}^\alpha\partial^\kappa f_{\kappa}^{\lambda'}- \\
&\frac{1}{3}t_1\omega_{\lambda\lambda}^\lambda\partial^\kappa f_{\kappa}^{\lambda'}+\frac{2}{3}t_3\omega_{\lambda\lambda}^\lambda\partial^\kappa f_{\kappa}^{\lambda'}+\frac{1}{3}t_1\partial^\alpha f_{\kappa}^\lambda\partial^\kappa f_{\lambda\alpha}^\lambda-\frac{1}{6}t_2\partial^\alpha f_{\kappa}^\lambda\partial^\kappa f_{\lambda\alpha}^\lambda+ \\
&\frac{1}{3}t_1\partial_{\kappa f_\lambda}^\lambda\partial^\kappa f_{\lambda}^{\lambda'}-\frac{1}{6}t_2\partial_{\kappa f_\lambda}^\lambda\partial^\kappa f_{\lambda}^{\lambda'}+\frac{2}{3}t_1\partial_{\kappa f_\theta}^\lambda\partial^\kappa f_{\lambda}^{\lambda'}+\frac{1}{6}t_2\partial_{\kappa f_\theta}^\lambda\partial^\kappa f_{\lambda}^{\lambda'}- \\
&\frac{1}{3}t_1\partial^\alpha f_{\alpha}^\lambda\partial^\kappa f_{\lambda\kappa}^\lambda+\frac{2}{3}t_3\partial^\alpha f_{\alpha}^\lambda\partial^\kappa f_{\lambda\kappa}^\lambda+\frac{1}{3}r_2\partial_\kappa\omega^{\alpha\beta\theta}\partial^\kappa\omega_{\alpha\beta\theta}+ \\
&\frac{2}{3}r_2\partial_\kappa\omega^{\theta\alpha\beta}\partial^\kappa\omega_{\alpha\beta\theta}-\frac{2}{3}r_2\partial^\beta\omega_{\lambda}^{\alpha\lambda}\partial_\lambda\omega_{\alpha\beta}^{\lambda'}+\frac{2}{3}r_2\partial^\beta\omega_{\lambda}^{\alpha\lambda}\partial_\lambda\omega_{\alpha\beta}^{\lambda'}
\end{aligned}$$



(No massless particles)

Unitarity conditions

$r_2 < 0 \ \&\& \ t_2 > 0$

	$\omega_{0+}^{\#1}$	$f_{0+}^{\#1}$	$f_{0+}^{\#2}$	$\omega_{0-}^{\#1}$
$\omega_{0+}^{\#1} \dagger$	t_3	$-i \sqrt{2} \ k \ t_3$	0	0
$f_{0+}^{\#1} \dagger$	$i \sqrt{2} \ k \ t_3$	$2 \ k^2 \ t_3$	0	0
$f_{0+}^{\#2} \dagger$	0	0	0	0
$\omega_{0-}^{\#1} \dagger$	0	0	0	$k^2 \ r_2 + t_2$

Source constraints

#	#
$\tau_{0+}^{\#2} == 0$	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 #:	16

	$\sigma_{0+}^{\#1}$	$\tau_{0+}^{\#1}$	$\tau_{0+}^{\#2}$	$\sigma_{0-}^{\#1}$
$\sigma_{0+}^{\#1} \dagger$	$\frac{1}{(1+2k^2)^2 t_3}$	$-\frac{i \sqrt{2} \ k}{(1+2k^2)^2 t_3}$	0	0
$\tau_{0+}^{\#1} \dagger$	$\frac{i \sqrt{2} \ k}{(1+2k^2)^2 t_3}$	$\frac{2k^2}{(1+2k^2)^2 t_3}$	0	0
$\tau_{0+}^{\#2} \dagger$	0	0	0	0
$\sigma_{0-}^{\#1} \dagger$	0	0	0	$\frac{1}{k^2 r_2 + t_2}$

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

	$\omega_{1+}^{\#1}{}_{\alpha\beta}$	$\omega_{1+}^{\#2}{}_{\alpha\beta}$	$f_{1+}^{\#1}{}_{\alpha\beta}$	$\omega_{1-}^{\#1}{}_{\alpha}$	$\omega_{1-}^{\#2}{}_{\alpha}$	$f_{1-}^{\#1}{}_{\alpha}$	$f_{1-}^{\#2}{}_{\alpha}$
$\omega_{1+}^{\#1} \dagger^{\alpha\beta}$	$\frac{1}{6} \ (t_1 + 4 \ t_2)$	$-\frac{t_1-2t_2}{3 \ \sqrt{2}}$	$-\frac{i \ k \ (t_1-2t_2)}{3 \ \sqrt{2}}$	0	0	0	0
$\omega_{1+}^{\#2} \dagger^{\alpha\beta}$	$-\frac{t_1-2t_2}{3 \ \sqrt{2}}$	$\frac{t_1+t_2}{3}$	$\frac{1}{3} \ i \ k \ (t_1 + t_2)$	0	0	0	0
$f_{1+}^{\#1} \dagger^{\alpha\beta}$	$\frac{i \ k \ (t_1-2t_2)}{3 \ \sqrt{2}}$	$-\frac{1}{3} \ i \ k \ (t_1 + t_2)$	$\frac{1}{3} \ k^2 \ (t_1 + t_2)$	0	0	0	0
$\omega_{1-}^{\#1} \dagger^{\alpha}$	0	0	0	$\frac{1}{6} \ (t_1 + 4 \ t_3)$	$\frac{t_1-2t_3}{3 \ \sqrt{2}}$	0	$\frac{1}{3} \ i \ k \ (t_1 - 2 \ t_3)$
$\omega_{1-}^{\#2} \dagger^{\alpha}$	0	0	0	$\frac{t_1-2t_3}{3 \ \sqrt{2}}$	$\frac{t_1+t_3}{3}$	0	$\frac{1}{3} \ i \ \sqrt{2} \ k \ (t_1 + t_3)$
$f_{1-}^{\#1} \dagger^{\alpha}$	0	0	0	0	0	0	0
$f_{1-}^{\#2} \dagger^{\alpha}$	0	0	0	$-\frac{1}{3} \ i \ k \ (t_1 - 2 \ t_3)$	$-\frac{1}{3} \ i \ \sqrt{2} \ k \ (t_1 + t_3)$	0	$\frac{2}{3} \ k^2 \ (t_1 + t_3)$

	$\sigma_{1+}^{\#1}{}_{\alpha\beta}$	$\sigma_{1+}^{\#2}{}_{\alpha\beta}$	$\tau_{1+}^{\#1}{}_{\alpha\beta}$	$\sigma_{1-}^{\#1}{}_{\alpha}$	$\sigma_{1-}^{\#2}{}_{\alpha}$	$\tau_{1-}^{\#1}{}_{\alpha}$	$\tau_{1-}^{\#2}{}_{\alpha}$
$\sigma_{1+}^{\#1} \dagger^{\alpha\beta}$	$\frac{2 \ (t_1+t_2)}{3 \ t_1 \ t_2}$	$\frac{\sqrt{2} \ (t_1-2t_2)}{3 \ (1+k^2) \ t_1 \ t_2}$	$\frac{i \ \sqrt{2} \ k \ (t_1-2t_2)}{3 \ (1+k^2) \ t_1 \ t_2}$	0	0	0	0
$\sigma_{1+}^{\#2} \dagger^{\alpha\beta}$	$\frac{\sqrt{2} \ (t_1-2t_2)}{3 \ (1+k^2) \ t_1 \ t_2}$	$\frac{t_1+4t_2}{3 \ (1+k^2)^2 \ t_1 \ t_2}$	$\frac{i \ k \ (t_1+4t_2)}{3 \ (1+k^2)^2 \ t_1 \ t_2}$	0	0	0	0
$\tau_{1+}^{\#1} \dagger^{\alpha\beta}$	$-\frac{i \ \sqrt{2} \ k \ (t_1-2t_2)}{3 \ (1+k^2) \ t_1 \ t_2}$	$-\frac{k^2 \ (t_1+4t_2)}{3 \ (1+k^2)^2 \ t_1 \ t_2}$	$-\frac{k^2 \ (t_1+4t_2)}{3 \ (1+k^2)^2 \ t_1 \ t_2}$	0	0	0	0
$\sigma_{1-}^{\#1} \dagger^{\alpha}$	0	0	0	$\frac{2 \ (t_1+t_3)}{3 \ t_1 \ t_3}$	$-\frac{\sqrt{2} \ (t_1-2t_3)}{3 \ (1+2k^2) \ t_1 \ t_3}$	$-\frac{2 i k t_1-4 i k t_3}{3 \ t_1 \ t_3+6 k^2 \ t_1 \ t_3}$	$-\frac{2 i k t_1-4 i k t_3}{3 \ t_1 \ t_3+6 k^2 \ t_1 \ t_3}$
$\sigma_{1-}^{\#2} \dagger^{\alpha}$	0	0	0	$-\frac{\sqrt{2} \ (t_1-2t_3)}{3 \ (1+2k^2) \ t_1 \ t_3}$	$\frac{t_1+4t_3}{3 \ (1+2k^2)^2 \ t_1 \ t_3}$	$\frac{i \ \sqrt{2} \ k \ (t_1+4t_3)}{3 \ (1+2k^2)^2 \ t_1 \ t_3}$	$\frac{i \ \sqrt{2} \ k \ (t_1+4t_3)}{3 \ (1+2k^2)^2 \ t_1 \ t_3}$
$\tau_{1-}^{\#1} \dagger^{\alpha}$	0	0	0	0	0	0	0
$\tau_{1-}^{\#2} \dagger^{\alpha}$	0	0	0	$\frac{2 i k t_1-4 i k t_3}{3 \ t_1 \ t_3+6 k^2 \ t_1 \ t_3}$	$-\frac{i \ \sqrt{2} \ k \ (t_1+4t_3)}{3 \ (1+2k^2)^2 \ t_1 \ t_3}$	$-\frac{2 k^2 \ (t_1+4t_3)}{3 \ (1+2k^2)^2 \ t_1 \ t_3}$	$-\frac{2 k^2 \ (t_1+4t_3)}{3 \ (1+2k^2)^2 \ t_1 \ t_3}$