

	$\sigma_{1^+}^{\#1}{}_{\alpha\beta}$	$\sigma_{1^+}^{\#2}{}_{\alpha\beta}$	$\tau_{1^+}^{\#1}{}_{\alpha\beta}$	$\sigma_{1^-}^{\#1}{}_{\alpha}$	$\sigma_{1^-}^{\#2}{}_{\alpha}$	$\tau_{1^-}^{\#1}{}_{\alpha}$	$\tau_{1^-}^{\#2}{}_{\alpha}$
$\sigma_{1^+}^{\#1}{}_{\dagger}{}^{\alpha\beta}$	0	$-\frac{\sqrt{2}}{t_1+k^2 t_1}$	$-\frac{i\sqrt{2} k}{t_1+k^2 t_1}$	0	0	0	0
$\sigma_{1^+}^{\#2}{}_{\dagger}{}^{\alpha\beta}$	$-\frac{\sqrt{2}}{t_1+k^2 t_1}$	$\frac{-2k^2(2r_3+r_5)+t_1}{(1+k^2)^2 t_1^2}$	$\frac{-2ik^3(2r_3+r_5)+ik t_1}{(1+k^2)^2 t_1^2}$	0	0	0	0
$\tau_{1^+}^{\#1}{}_{\dagger}{}^{\alpha\beta}$	$\frac{i\sqrt{2} k}{t_1+k^2 t_1}$	$\frac{i(2k^3(2r_3+r_5)-k t_1)}{(1+k^2)^2 t_1^2}$	$\frac{-2k^4(2r_3+r_5)+k^2 t_1}{(1+k^2)^2 t_1^2}$	0	0	0	0
$\sigma_{1^-}^{\#1}{}_{\dagger}{}^{\alpha}$	0	0	0	$\frac{1}{k^2(2r_3+r_5)}$	$-\frac{1}{\sqrt{2}(k^2+2k^4)(2r_3+r_5)}$	0	$-\frac{i}{k(1+2k^2)(2r_3+r_5)}$
$\sigma_{1^-}^{\#2}{}_{\dagger}{}^{\alpha}$	0	0	0	$-\frac{1}{\sqrt{2}(k^2+2k^4)(2r_3+r_5)}$	$\frac{6k^2(2r_3+r_5)+t_1}{2(k+2k^3)^2(2r_3+r_5)t_1}$	0	$\frac{i(6k^2(2r_3+r_5)+t_1)}{\sqrt{2}k(1+2k^2)^2(2r_3+r_5)t_1}$
$\tau_{1^-}^{\#1}{}_{\dagger}{}^{\alpha}$	0	0	0	0	0	0	0
$\tau_{1^-}^{\#2}{}_{\dagger}{}^{\alpha}$	0	0	0	$\frac{i}{k(1+2k^2)(2r_3+r_5)}$	$-\frac{i(6k^2(2r_3+r_5)+t_1)}{\sqrt{2}k(1+2k^2)^2(2r_3+r_5)t_1}$	0	$\frac{6k^2(2r_3+r_5)+t_1}{(1+2k^2)^2(2r_3+r_5)t_1}$

	$\omega_{1^+}^{\#1}{}_{\alpha\beta}$	$\omega_{1^+}^{\#2}{}_{\alpha\beta}$	$f_{1^+}^{\#1}{}_{\alpha\beta}$	$\omega_{1^-}^{\#1}{}_{\alpha}$	$\omega_{1^-}^{\#2}{}_{\alpha}$	$f_{1^-}^{\#1}{}_{\alpha}$	$f_{1^-}^{\#2}{}_{\alpha}$
$\omega_{1^+}^{\#1}{}_{\dagger}{}^{\alpha\beta}$	$k^2(2r_3+r_5)-\frac{t_1}{2}$	$-\frac{t_1}{\sqrt{2}}$	$-\frac{ik t_1}{\sqrt{2}}$	0	0	0	0
$\omega_{1^+}^{\#2}{}_{\dagger}{}^{\alpha\beta}$	$-\frac{t_1}{\sqrt{2}}$	0	0	0	0	0	0
$f_{1^+}^{\#1}{}_{\dagger}{}^{\alpha\beta}$	$\frac{ik t_1}{\sqrt{2}}$	0	0	0	0	0	0
$\omega_{1^-}^{\#1}{}_{\dagger}{}^{\alpha}$	0	0	0	$k^2(2r_3+r_5)+\frac{t_1}{6}$	$\frac{t_1}{3\sqrt{2}}$	0	$\frac{ik t_1}{3}$
$\omega_{1^-}^{\#2}{}_{\dagger}{}^{\alpha}$	0	0	0	$\frac{t_1}{3\sqrt{2}}$	$\frac{t_1}{3}$	0	$\frac{1}{3}i\sqrt{2}k t_1$
$f_{1^-}^{\#1}{}_{\dagger}{}^{\alpha}$	0	0	0	0	0	0	0
$f_{1^-}^{\#2}{}_{\dagger}{}^{\alpha}$	0	0	0	$-\frac{1}{3}ik t_1$	$-\frac{1}{3}i\sqrt{2}k t_1$	0	$\frac{2k^2 t_1}{3}$

Massive particle	
Pole residue:	$-\frac{1}{r_2} > 0$
Polarisations:	1
Square mass:	$\frac{t_1}{r_2} > 0$
Spin:	0
Parity:	Odd

Quadratic pole	
Pole residue:	$-\frac{1}{(2r_3+r_5)t_1^2} > 0$
Polarisations:	2

Unitarity conditions

$r_2 < 0$ 
&&
 $r_5 < -2r_3$ 
&&
 $t_1 < 0$

Added source term:

$f_{\alpha\beta}^{\alpha\beta}\tau_{\alpha\beta}+\omega^{\alpha\beta\chi}\sigma_{\alpha\beta\chi}$

Lagrangian density

$$\begin{aligned}
 &-\frac{1}{3}t_1\omega_{\lambda\prime}^{\alpha\prime}\omega_{\kappa\alpha}^{\kappa}-t_1\omega_{\lambda\prime}^{\kappa\lambda}\omega_{\kappa\lambda\prime}^{\prime}-2r_3\partial_{\lambda}\omega_{\lambda\prime}^{\kappa\lambda}\partial_{\kappa}\omega_{\lambda\prime}^{\alpha}- \\
 &r_5\partial_{\lambda}\omega_{\lambda\prime}^{\kappa\lambda}\partial_{\kappa}\omega_{\lambda\prime}^{\alpha}+\frac{2}{3}r_2\partial^{\beta}\omega_{\theta\alpha}^{\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}+2r_3\partial_{\alpha}\omega_{\lambda\prime}^{\alpha}\partial_{\theta}\omega^{\theta\kappa\lambda}-r_5\partial_{\alpha}\omega_{\lambda\prime}^{\alpha}\partial_{\theta}\partial_{\kappa}\omega^{\theta\kappa\lambda}- \\
 &2r_3\partial_{\theta}\omega_{\lambda\prime}^{\alpha}\partial_{\kappa}\omega^{\theta\kappa\lambda}+r_5\partial_{\theta}\omega_{\lambda\prime}^{\alpha}\partial_{\kappa}\omega^{\theta\kappa\lambda}-2r_3\partial_{\alpha}\omega_{\lambda\prime}^{\alpha}\partial_{\theta}\partial_{\kappa}\omega^{\kappa\lambda\theta}- \\
 &r_5\partial_{\alpha}\omega_{\lambda\prime}^{\alpha}\partial_{\theta}\partial_{\kappa}\omega^{\kappa\lambda\theta}+4r_3\partial_{\theta}\omega_{\lambda\prime}^{\alpha}\partial_{\kappa}\omega^{\kappa\lambda\theta}+2r_5\partial_{\theta}\omega_{\lambda\prime}^{\alpha}\partial_{\kappa}\omega^{\kappa\lambda\theta}- \\
 &\frac{1}{2}t_1\partial^{\alpha}f_{\theta\kappa}\partial^{\kappa}f_{\alpha}^{\theta}-\frac{1}{2}t_1\partial^{\alpha}f_{\kappa\theta}\partial^{\kappa}f_{\alpha}^{\theta}-\frac{1}{2}t_1\partial^{\alpha}f_{\kappa\theta}\partial^{\kappa}f_{\alpha}^{\theta}-\frac{1}{2}t_1\partial^{\alpha}f_{\lambda\kappa}\partial^{\kappa}f_{\alpha\lambda}+ \\
 &\frac{1}{3}t_1\omega_{\kappa\alpha}^{\alpha}\partial^{\kappa}f_{\lambda\prime}^{\prime}+\frac{1}{3}t_1\omega_{\kappa\lambda}^{\lambda}\partial^{\kappa}f_{\lambda\prime}^{\prime}+\frac{2}{3}t_1\partial^{\alpha}f_{\kappa\alpha}\partial^{\kappa}f_{\lambda\prime}^{\prime}-\frac{1}{3}t_1\partial_{\kappa}f_{\lambda\prime}^{\lambda}\partial^{\kappa}f_{\lambda\prime}^{\prime}+ \\
 &2t_1\omega_{\lambda\kappa\theta}\partial^{\kappa}f^{\lambda\theta}-\frac{1}{3}t_1\omega_{\lambda\alpha}^{\alpha}\partial^{\kappa}f_{\lambda\prime}^{\prime}-\frac{1}{3}t_1\omega_{\lambda\lambda}^{\lambda}\partial^{\kappa}f_{\lambda\prime}^{\prime}+\frac{1}{2}t_1\partial^{\alpha}f_{\lambda\kappa}\partial^{\kappa}f_{\lambda\alpha}+ \\
 &\frac{1}{2}t_1\partial_{\kappa}f_{\theta}^{\lambda}\partial^{\kappa}f_{\lambda}^{\theta}+\frac{1}{2}t_1\partial_{\kappa}f_{\lambda}^{\theta}\partial^{\kappa}f_{\theta}^{\lambda}-\frac{1}{3}t_1\partial^{\alpha}f_{\lambda\alpha}\partial^{\kappa}f_{\lambda\kappa}+ \\
 &\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\prime}^{\alpha\lambda}\partial_{\lambda}\omega_{\alpha\beta}^{\prime}+ \\
 &\frac{2}{3}r_2\partial^{\beta}\omega_{\lambda\prime}^{\lambda\alpha}\partial_{\lambda}\omega_{\alpha\beta}^{\prime}-4r_3\partial^{\beta}\omega_{\lambda\prime}^{\lambda\alpha}\partial_{\lambda}\omega_{\alpha\beta}^{\prime}-2r_3\partial_{\alpha}\omega_{\lambda\prime}^{\alpha}\partial^{\lambda}\omega^{\theta\kappa}_{\kappa}+ \\
 &r_5\partial_{\alpha}\omega_{\lambda\prime}^{\alpha}\partial^{\lambda}\omega^{\theta\kappa}_{\kappa}+2r_3\partial_{\theta}\omega_{\lambda\prime}^{\alpha}\partial^{\lambda}\omega^{\theta\kappa}_{\kappa}-r_5\partial_{\theta}\omega_{\lambda\prime}^{\alpha}\partial^{\lambda}\omega^{\theta\kappa}_{\kappa}
 \end{aligned}$$

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

	$\sigma_{0^+}^{\#1}$	$\tau_{0^+}^{\#1}$	$\tau_{0^+}^{\#2}$	$\sigma_{0^+}^{\#1}$
$\sigma_{0^+}^{\#1}{}_{\dagger}$	$\frac{1}{6k^2 r_3}$	0	0	0
$\tau_{0^+}^{\#1}{}_{\dagger}$	0	0	0	0
$\tau_{0^+}^{\#2}{}_{\dagger}$	0	0	0	0
$\sigma_{0^+}^{\#1}{}_{\dagger}$	0	0	0	$\frac{1}{k^2 r_2-t_1}$

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

	$\omega_{0^+}^{\#1}$	$f_{0^+}^{\#1}$	$f_{0^+}^{\#2}$	$\omega_{0^+}^{\#1}$
$\omega_{0^+}^{\#1}{}_{\dagger}$	$6k^2 r_3$	0	0	0
$f_{0^+}^{\#1}{}_{\dagger}$	0	0	0	0
$f_{0^+}^{\#2}{}_{\dagger}$	0	0	0	0
$\omega_{0^+}^{\#1}{}_{\dagger}$	0	0	0	$k^2 r_2-t_1$