Table (0⁺ / 0⁻ ω–f sector)

	$\omega^{\#1}_{0^+}$	$f^{\#1}_{0^+}$	$f^{\#2}_{0^+}$	$\omega^{\#1}_{0^-}$
$\omega^{\#1}_{0^+}\dagger$	0	0	0	0
$f^{\#1}_{0^+}\dagger$	0	0	0	0
$f^{\#2}_{0^+}\dagger$	0	0	0	0
$\omega^{\#1}_{0^-}\dagger$	0	0	0	$k^2 r_2 - t_1$

Table (0⁺ / 0⁻ σ–τ sector)

	$\sigma^{\#1}_{0^+}$	$\tau^{\#1}_{0^+}$	$\tau^{\#2}_{0^+}$	$\sigma^{\#1}_{0^-}$
$\sigma^{\#1}_{0^+}\dagger$	0	0	0	0
$\tau^{\#1}_{0^+}\dagger$	0	0	0	0
$\tau^{\#2}_{0^+}\dagger$	0	0	0	0
$\sigma^{\#1}_{0^-}\dagger$	0	0	0	$\dfrac{1}{k^2 r_2 - t_1}$

Source constraints

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

Table (2⁺ / 2⁻ ω–f sector)

	$\omega^{\#1}_{2^+\,\alpha\beta}$	$f^{\#1}_{2^+\,\alpha\beta}$	$\omega^{\#1}_{2^-\,\alpha\beta\chi}$
$\omega^{\#1}_{2^+}\dagger^{\alpha\beta}$	0	0	$\dfrac{t_1}{2}$
$f^{\#1}_{2^+}\dagger^{\alpha\beta}$	$-\dfrac{i\,k\,t_1}{\sqrt{2}}$	$k^2 t_1$	0
$\omega^{\#1}_{2^-}\dagger^{\alpha\beta\chi}$	$\dfrac{t_1}{2}$	$\dfrac{i\,k\,t_1}{\sqrt{2}}$	0

Table (1⁺ / 1⁻ sector)

	$\omega^{\#1}_{1^+\,\alpha\beta}$	$\omega^{\#2}_{1^+\,\alpha\beta}$	$f^{\#1}_{1^+\,\alpha\beta}$	$\omega^{\#1}_{1^-\,\alpha}$	$\omega^{\#2}_{1^-\,\alpha}$	$f^{\#1}_{1^-\,\alpha}$	$f^{\#2}_{1^-\,\alpha}$
$\omega^{\#1}_{1^+}\dagger^{\alpha\beta}$	$k^2 r_5 - \dfrac{t_1}{2}$	$-\dfrac{t_1}{\sqrt{2}}$	$-\dfrac{i\,k\,t_1}{\sqrt{2}}$	0	0	0	0
$\omega^{\#2}_{1^+}\dagger^{\alpha\beta}$	$-\dfrac{t_1}{\sqrt{2}}$	0	0	0	0	0	0
$f^{\#1}_{1^+}\dagger^{\alpha\beta}$	$\dfrac{i\,k\,t_1}{\sqrt{2}}$	0	0	0	0	0	0
$\omega^{\#1}_{1^-}\dagger^{\alpha}$	0	0	0	$k^2 r_5 + \dfrac{t_1}{6}$	$\dfrac{t_1}{3\sqrt{2}}$	0	$\dfrac{i\,k\,t_1}{3}$
$\omega^{\#2}_{1^-}\dagger^{\alpha}$	0	0	0	$\dfrac{t_1}{3\sqrt{2}}$	$\dfrac{t_1}{3}$	0	$\dfrac{1}{3}i\sqrt{2}\,k\,t_1$
$f^{\#1}_{1^-}\dagger^{\alpha}$	0	0	0	0	0	0	0
$f^{\#2}_{1^-}\dagger^{\alpha}$	0	0	0	$-\dfrac{1}{3}i\,k\,t_1$	$-\dfrac{1}{3}i\sqrt{2}\,k\,t_1$	0	$\dfrac{2 k^2 t_1}{3}$

Table (2⁺ / 2⁻ σ–τ sector)

	$\sigma^{\#1}_{2^+\,\alpha\beta}$	$\tau^{\#1}_{2^+\,\alpha\beta}$	$\sigma^{\#1}_{2^-\,\alpha\beta\chi}$
$\sigma^{\#2}_{2^-\,\alpha\beta\chi}$	0	0	$\dfrac{2}{t_1}$
$\tau^{\#1}_{2^+}\dagger^{\alpha\beta}$	$-\dfrac{2i\sqrt{2}\,k}{(1+2k^2)^2 t_1}$	$\dfrac{4 k^2}{(1+2k^2)^2 t_1}$	0
$\sigma^{\#1}_{2^+}\dagger^{\alpha\beta}$	$\dfrac{2}{(1+2k^2)^2 t_1}$	$\dfrac{2i\sqrt{2}\,k}{(1+2k^2)^2 t_1}$	0

Table (large left — 1⁺ / 1⁻ propagator sector)

	$\sigma^{\#1}_{1^+}\dagger^{\alpha\beta}$	$\sigma^{\#2}_{1^+}\dagger^{\alpha\beta}$	$\tau^{\#1}_{1^+}\dagger^{\alpha\beta}$	$\sigma^{\#1}_{1^-}\dagger^{\alpha}$	$\sigma^{\#2}_{1^-}\dagger^{\alpha}$	$\tau^{\#1}_{1^-}\dagger^{\alpha}$	$\tau^{\#2}_{1^-}\dagger^{\alpha}$
$\tau^{\#2}_{1^-\,\alpha}$	0	0	0	$-\dfrac{i}{k r_5 + 2 k^3 r_5}$	$\dfrac{i(6k^2 r_5 + t_1)}{\sqrt{2}\,k(1+2k^2)^2 r_5 t_1}$	0	$\dfrac{6k^2 r_5 + t_1}{(1+2k^2)^2 r_5 t_1}$
$\tau^{\#1}_{1^-\,\alpha}$	0	0	0	0	0	0	0
$\sigma^{\#2}_{1^-\,\alpha}$	0	0	0	$\dfrac{1}{\sqrt{2}\,(k^2 r_5 + 2 k^4 r_5)}$	$\dfrac{6k^2 r_5 + t_1}{2(k+2k^3)^2 r_5 t_1}$	0	$-\dfrac{i(6k^2 r_5 + t_1)}{\sqrt{2}\,k(1+2k^2)^2 r_5 t_1}$
$\sigma^{\#1}_{1^-\,\alpha}$	0	0	0	$\dfrac{1}{k^2 r_5}$	$\dfrac{1}{\sqrt{2}\,(k^2 r_5 + 2 k^4 r_5)}$	0	$-\dfrac{i}{k r_5 + 2 k^3 r_5}$
$\tau^{\#1}_{1^+\,\alpha\beta}$	$-\dfrac{i\sqrt{2}\,k}{t_1 + k^2 t_1}$	$\dfrac{i(2k^3 r_5 - k t_1)}{(1+k^2)^2 t_1^2}$	$\dfrac{-2k^4 r_5 + k^2 t_1}{(1+k^2)^2 t_1^2}$	0	0	0	0
$\sigma^{\#2}_{1^+\,\alpha\beta}$	$-\dfrac{\sqrt{2}}{t_1 + k^2 t_1}$	$\dfrac{-2k^2 r_5 + t_1}{(1+k^2)^2 t_1^2}$	$\dfrac{i(2k^3 r_5 - k t_1)}{(1+k^2)^2 t_1^2}$	0	0	0	0
$\sigma^{\#1}_{1^+\,\alpha\beta}$	0	$-\dfrac{\sqrt{2}}{t_1 + k^2 t_1}$	$\dfrac{i\sqrt{2}\,k}{t_1 + k^2 t_1}$	0	0	0	0

Lagrangian density

$$
\begin{aligned}
\mathcal{L} =\;& -\tfrac{1}{3} t_1\, \omega_i{}^{\alpha l}\, \omega_{\kappa\alpha}{}^{\kappa} - t_1\, \omega_i{}^{\kappa\lambda}\, \omega_{\kappa\lambda}{}^{i} + f^{\alpha\beta}\, \tau_{\alpha\beta} + \omega^{\alpha\beta\chi}\, \sigma_{\alpha\beta\chi} - r_5\, \partial_\iota \omega^{\kappa\lambda}{}_\kappa\, \partial^\iota \omega_{\lambda}{}^{\alpha}{}_{\alpha} \\
& + \tfrac{2}{3} r_2\, \partial^\beta \omega^{\theta\alpha}{}_\theta\, \partial_\kappa \omega_{\alpha\beta}{}^{\kappa} - \tfrac{1}{3} r_2\, \partial_\theta \omega_{\alpha\beta}{}^{\kappa}\, \partial_\kappa \omega^{\theta\alpha\beta} - \tfrac{2}{3} r_2\, \partial_\theta \omega_{\alpha\beta}{}^{\kappa}\, \partial_\kappa \omega^{\theta\alpha\beta} \\
& - r_5\, \partial_\alpha \omega_{\lambda}{}^{\alpha}{}_\theta\, \partial_\kappa \omega^{\theta\kappa\lambda} - r_5\, \partial_\alpha \omega_{\lambda}{}^{\alpha}{}_\theta\, \partial_\kappa \omega^{\kappa\lambda\theta} + 2\, r_5\, \partial_\theta \omega_{\lambda}{}^{\alpha}{}_\alpha\, \partial^\kappa f_\iota{}^{l} \\
& + \tfrac{1}{2} t_1\, \partial^\alpha f_{\theta\kappa}\, \partial^\kappa f_\alpha{}^{\theta} - \tfrac{1}{2} t_1\, \partial^\alpha f_\kappa{}^{\lambda}{}_\theta\, \partial^\kappa f_{\alpha\lambda} + \tfrac{1}{3} t_1\, \omega_{\kappa\alpha}{}^{\alpha}\, \partial^\kappa f_\iota{}^{l} \\
& + \tfrac{1}{3} t_1\, \omega_{\kappa\lambda}{}^{\lambda}\, \partial^\kappa f^{l}{}_\iota + \tfrac{2}{3} t_1\, \partial^\alpha f_{\kappa\alpha}\, \partial^\kappa f^{l}{}_\iota - \tfrac{1}{3} t_1\, \partial_\kappa f^{\lambda}{}_\lambda\, \partial^\kappa f_\iota{}^{\theta} + 2 t_1\, \omega_{\iota\kappa\theta}\, \partial^\kappa f^{\iota\theta} \\
& + \tfrac{1}{3} t_1\, \omega_{\iota\alpha}{}^{\alpha}\, \partial_\kappa f^{l}{}_\kappa - \tfrac{1}{3} t_1\, \omega_{\iota\lambda}{}^{\lambda}\, \partial^\kappa f^{l}{}_\kappa + \tfrac{1}{2} t_1\, \partial^\alpha f^{\lambda}{}_\kappa\, \partial^\kappa f_{\lambda\alpha} + \tfrac{1}{2} t_1\, \partial_\kappa f_\theta{}^{\lambda}\, \partial^\kappa f_\lambda{}^{\theta} \\
& + \tfrac{1}{2} t_1\, \partial_\kappa f^{\lambda}{}_\theta\, \partial^\kappa f_\lambda{}^{\theta} - \tfrac{1}{3} t_1\, \partial^\alpha f_{\lambda\kappa} + \tfrac{1}{3} r_2\, \partial_\kappa \omega^{\alpha\beta\theta}\, \partial^\kappa \omega_{\alpha\beta\theta} - \tfrac{2}{3} r_2\, \partial_\kappa \omega^{\theta\alpha\beta}\, \partial^\kappa \omega_{\alpha\beta\theta} \\
& + \tfrac{2}{3} r_2\, \partial^\beta \omega^{\alpha\lambda}{}_\alpha\, \partial_\lambda \omega_{\alpha\beta}{}^{l} + \tfrac{2}{3} r_2\, \partial^\alpha \omega_\lambda{}^{\lambda\alpha}\, \partial_\theta \omega_\lambda{}^{\alpha}{}_\alpha\, \partial^\lambda \omega^{\theta\kappa}{}_\kappa
\end{aligned}
$$

Massive particle

$J^P = 0^-$	
Pole residue:	$-\dfrac{1}{r_2} > 0$
Polarisations:	1
Square mass:	$\dfrac{t_1}{r_2} > 0$
Spin:	0
Parity:	Odd
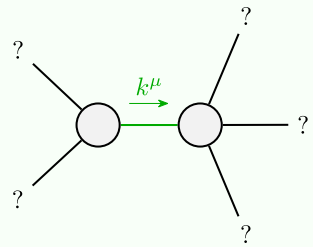
Quadratic pole

Pole residue:	$-\dfrac{1}{r_5 t_1^2} > 0$
Polarisations:	2

$r_2 < 0\ \&\&\ r_5 < 0\ \&\&\ t_1 < 0$