Top-right propagator table ($1^\pm$ sector)

	$\omega_{1^+\,\alpha\beta}^{\#1}$	$\omega_{1^+\,\alpha\beta}^{\#2}$	$f_{1^+\,\alpha\beta}^{\#1}$	$\omega_{1^-\,\alpha}^{\#1}$	$\omega_{1^-\,\alpha}^{\#2}$	$f_{1^-\,\alpha}^{\#1}$	$f_{1^-\,\alpha}^{\#2}$
$\omega_{1^+}^{\#1}{}^{\dagger\alpha\beta}$	$k^2(2r_3+r_5)+\frac{2t_2}{3}$	$\frac{\sqrt{2}\,t_2}{3}$	$\frac{1}{3}i\sqrt{2}\,k t_2$	0	0	0	0
$\omega_{1^+}^{\#2}{}^{\dagger\alpha\beta}$	$\frac{\sqrt{2}\,t_2}{3}$	$\frac{t_2}{3}$	$\frac{i k t_2}{3}$	0	0	0	0
$f_{1^+}^{\#1}{}^{\dagger\alpha\beta}$	$-\frac{1}{3}i\sqrt{2}\,k t_2$	$-\frac{1}{3}i k t_2$	$\frac{k^2 t_2}{3}$	0	0	0	0
$\omega_{1^-}^{\#1}{}^{\dagger\alpha}$	0	0	0	$k^2\left(\frac{r_3}{2}+r_5\right)+\frac{2t_3}{3}$	$-\frac{\sqrt{2}\,t_3}{3}$	0	$-\frac{2}{3}i k t_3$
$\omega_{1^-}^{\#2}{}^{\dagger\alpha}$	0	0	0	$-\frac{\sqrt{2}\,t_3}{3}$	$\frac{t_3}{3}$	0	$\frac{1}{3}i\sqrt{2}\,k t_3$
$f_{1^-}^{\#1}{}^{\dagger\alpha}$	0	0	0	0	0	0	0
$f_{1^-}^{\#2}{}^{\dagger\alpha}$	0	0	0	$\frac{2 i k t_3}{3}$	$-\frac{1}{3}i\sqrt{2}\,k t_3$	0	$\frac{2 k^2 t_3}{3}$

$0^+/0^-$ table

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

$2^+/2^-$ table

	$\omega_{2^+\,\alpha\beta}^{\#1}$	$f_{2^+\,\alpha\beta}^{\#1}$	$\omega_{2^-\,\alpha\beta\chi}^{\#1}$
$\omega_{2^+}^{\#1}{}^{\dagger\alpha\beta}$	$-\frac{3k^2 r_3}{2}$	0	0
$f_{2^+}^{\#1}{}^{\dagger\alpha\beta}$	0	0	0
$\omega_{2^-}^{\#1}{}^{\dagger\alpha\beta\chi}$	0	0	0

0 sector table

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

2 sector σ/τ table

	$\sigma_{2^+\,\alpha\beta}^{\#1}$	$\tau_{2^+\,\alpha\beta}^{\#1}$	$\sigma_{2^-\,\alpha\beta\chi}^{\#1}$
$\sigma_{2^+}^{\#1}{}^{\dagger\alpha\beta}$	$-\frac{2}{3k^2 r_3}$	0	0
$\tau_{2^+}^{\#1}{}^{\dagger\alpha\beta}$	0	0	0
$\sigma_{2^-}^{\#1}{}^{\dagger\alpha\beta\chi}$	0	0	0

Left $1^\pm$ table

	$\sigma_{1^+}^{\#1}{}^{\dagger\alpha\beta}$	$\sigma_{1^+}^{\#2}{}^{\dagger\alpha\beta}$	$\tau_{1^+}^{\#1}{}^{\dagger\alpha\beta}$	$\sigma_{1^-}^{\#1}{}^{\dagger\alpha}$	$\sigma_{1^-}^{\#2}{}^{\dagger\alpha}$	$\tau_{1^-}^{\#1}{}^{\dagger\alpha}$	$\tau_{1^-}^{\#2}{}^{\dagger\alpha}$
$\tau_{1^-}^{\#2}{}_{\alpha}$	0	0	0	$\frac{4i}{k(1+2k^2)(r_3+2r_5)}$	$\frac{i\sqrt{2}(3k^2(r_3+2r_5)+4t_3)}{k(1+2k^2)^2(r_3+2r_5)t_3}$	0	$\frac{6k^2(r_3+2r_5)+8t_3}{(1+2k^2)^2(r_3+2r_5)t_3}$
$\tau_{1^-}^{\#1}{}_{\alpha}$	0	0	0	0	0	0	0
$\sigma_{1^-}^{\#2}{}_{\alpha}$	0	0	0	$\frac{2\sqrt{2}}{k^2(1+2k^2)(r_3+2r_5)}$	$\frac{3k^2(r_3+2r_5)+4t_3}{(k+2k^3)^2(r_3+2r_5)t_3}$	0	$-\frac{i\sqrt{2}(3k^2(r_3+2r_5)+4t_3)}{k(1+2k^2)^2(r_3+2r_5)t_3}$
$\sigma_{1^-}^{\#1}{}_{\alpha}$	0	0	0	$\frac{2}{k^2(r_3+2r_5)}$	$\frac{2\sqrt{2}}{k^2(1+2k^2)(r_3+2r_5)}$	0	$\frac{4i}{(5+2r_3)(2r_5)}$
$\tau_{1^+}^{\#1}{}_{\alpha\beta}$	$-\frac{i\sqrt{2}}{k(1+2k^2)(2r_3+r_5)}$	$\frac{i(3k^2(2r_3+r_5)+4t_2)}{k(1+2k^2)^2(2r_3+r_5)t_2}$	$\frac{3k^2(2r_3+r_5)+2t_2}{(1+2k^2)^2(2r_3+r_5)t_2}$	0	0	0	0
$\sigma_{1^+}^{\#2}{}_{\alpha\beta}$	$-\frac{\sqrt{2}}{k^2(1+2k^2)(2r_3+r_5)}$	$\frac{3k^2(2r_3+r_5)+2t_2}{(k+2k^3)^2(2r_3+r_5)t_2}$	$\frac{i(3k^2(2r_3+r_5)+2t_2)}{k(1+2k^2)^2(2r_3+r_5)t_2}$	0	0	0	0
$\sigma_{1^+}^{\#1}{}_{\alpha\beta}$	$\frac{1}{k^2(2r_3+r_5)}$	$-\frac{\sqrt{2}}{k^2(1+2k^2)(2r_3+r_5)}$	$\frac{i\sqrt{2}}{k(1+2k^2)(2r_3+r_5)}$	0	0	0	0

Lagrangian density

$$
\begin{aligned}
\mathcal{L} = \;& \tfrac{2}{3}t_3\,\omega_{\iota}{}^{\alpha\iota}\,\omega_{\kappa\alpha}{}^{\kappa}+\tfrac{2}{3}t_2\,\omega_{\iota}{}^{\kappa\lambda}\,\omega_{\kappa\lambda}{}^{\iota}+\tfrac{1}{3}t_2\,\omega_{\kappa\lambda}{}^{\iota}\,\omega_{\iota}{}^{\kappa\lambda} \\
& -\tfrac{1}{3}t_3\,\partial_\iota\omega^{\kappa\lambda}{}_\kappa\,\partial'\omega_{\lambda\alpha}{}^{\alpha}-r_5\,\partial_\iota\omega^{\kappa\lambda}{}_\kappa\,\partial'\omega_{\lambda\alpha}{}^{\alpha}+\tfrac{2}{3}r_2\,\partial_\beta\omega_{\alpha\beta}{}^{\kappa} \\
& -\tfrac{1}{3}t_2\,\partial_\theta\omega_{\alpha\beta}{}^{\kappa}\,\partial_\kappa\omega^{\theta\alpha\beta}-\tfrac{1}{2}r_2\,\partial_\theta\omega_{\alpha\beta}{}^{\kappa}\,\partial_\kappa\omega^{\theta\kappa\lambda}- \\
& r_5\,\partial_\alpha\omega_\lambda{}^\alpha_\theta\,\partial_\kappa\omega^{\theta\kappa\lambda}-\tfrac{1}{2}r_3\,\partial_\alpha\omega_\lambda{}^\alpha_\theta\,\partial_\kappa\omega^{\kappa\lambda\theta}+ \\
& \tfrac{1}{2}r_3\,\partial_\alpha\omega_\lambda{}^\theta_\theta\,\partial_\kappa\omega^{\kappa\lambda\theta}-r_5\,\partial_\alpha\omega_\lambda{}^\alpha_\theta\,\partial_\kappa\omega^{\kappa\lambda\theta}+ \\
& 2r_5\,\partial_\theta\omega_\lambda{}^\alpha_\alpha\,\partial_\kappa\omega^{\kappa\lambda\theta}+\tfrac{1}{6}t_2\,\partial_\theta f_{\theta\kappa}\,\partial^\kappa f_\alpha{}^\theta-\tfrac{1}{6}t_2\,\partial_\alpha f_{\kappa\theta}\,\partial^\kappa f^{\theta}_\alpha+ \\
& \tfrac{1}{6}t_2\,\partial_\theta f^\kappa_{\lambda}\,\partial^\kappa f_{\alpha\lambda}-\tfrac{1}{3}t_3\,\omega_{\kappa\alpha}{}^\alpha\,\partial^\kappa f^{\iota}_\iota-\tfrac{4}{3}t_3\,\partial^\alpha f_{\kappa\alpha}\,\partial^\kappa f^{\iota}_\iota+ \\
& \tfrac{2}{3}t_3\,\partial_\kappa f^\lambda_\lambda\,\partial^\kappa f'_\iota+\tfrac{1}{3}t_2\,\omega_{\iota\theta\kappa}\,\partial^\kappa f^{\iota\theta}-\tfrac{2}{3}t_2\,\omega_{\iota\kappa\theta}\,\partial^\kappa f^{\iota\theta}- \\
& \tfrac{2}{3}t_2\,\partial_\kappa f^\lambda_\lambda\,\partial^\kappa f^{\iota\theta}+\tfrac{2}{3}t_3\,\omega_{\iota\alpha}{}^\alpha\,\partial^\kappa f^{\iota}+\tfrac{2}{3}t_2\,\omega_{\iota\lambda}{}^\lambda\,\partial^\kappa f^\iota-\tfrac{1}{6}t_2\,\partial^\alpha f_\kappa\,\partial^\kappa f_{\lambda\alpha}- \\
& \tfrac{1}{6}t_2\,\partial_\kappa f^\lambda_\theta\,\partial^\kappa f_\lambda{}^\theta+\tfrac{1}{6}t_2\partial_\lambda f^\lambda_\theta\,\partial^\kappa f_\lambda{}^\theta+\tfrac{2}{3}t_3\,\partial^\alpha f'_\kappa\,\partial^\kappa 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_\alpha\omega^{\theta\alpha\beta}\,\partial_\iota\omega_{\alpha\beta}{}^{\iota}+ \\
& \tfrac{2}{3}r_2\,\partial^\beta\omega_{\iota}{}^{\lambda\alpha}\partial_\iota\omega_{\alpha\beta}{}^{\iota}-4r_3\,\partial^\beta\omega_{\iota}{}^{\lambda\alpha}\partial_\lambda\omega_{\alpha\beta}{}^{\iota}-\tfrac{1}{2}r_3\,\partial_\theta\omega_\lambda{}^\alpha_\alpha\,\partial^\lambda\omega^{\theta\kappa}_\kappa+ \\
& r_5\,\partial_\alpha\omega_\lambda{}^\alpha_\theta\,\partial^\lambda\omega^{\theta\kappa}_\kappa-r_5\,\partial_\theta\omega_\lambda{}^\alpha_\alpha\,\partial^\lambda\omega^{\theta\kappa}_\kappa
\end{aligned}
$$

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

Source constraints

SO(3) irreps	#
$\tau_{0^+}^{\#2}==0$	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
$\sigma_{2^-}^{\#1\alpha\beta\chi}==0$	5
$\tau_{2^+}^{\#1\alpha\beta}==0$	5
Total #:	21

Diagrams

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

Massive particle — $J^P = 0^-$
Pole residue: $-\dfrac{1}{r_2} > 0$
Polarisations: 1
Square mass: $-\dfrac{t_2}{r_2} > 0$
Spin: 0
Parity: Odd

Unitarity conditions

$r_2 < 0\ \&\&\ r_3 < 0\ \&\&\ r_5 < -\frac{r_3}{2}\ \&\&\ t_2 > 0\ \|\ r_2 < 0\ \&\&\ r_3 < 0\ \&\&\ r_5 > -2r_3\ \&\&\ t_2 > 0\ \|$

$r_2 < 0\ \&\&\ r_3 > 0\ \&\&\ -2r_3 < r_5 < -\frac{r_3}{2}\ \&\&\ t_2 > 0$