PSALTer results panel

Wave operator and propagator

	$2^+\mathcal{A}^\parallel_{\alpha\beta}$	$2^+f^\parallel_{\alpha\beta}$	$2^-\mathcal{A}^\parallel_{\alpha\beta\chi}$
$2^+\mathcal{A}^\parallel\dagger^{\alpha\beta}$	$\lambda+k^2(2r_1-2r_3+r_4)+\frac{t_1}{2}$	$-\frac{i k(2\lambda+t_1)}{\sqrt{2}}$	0
$2^+f^\parallel\dagger^{\alpha\beta}$	$\frac{i k(2\lambda+t_1)}{\sqrt{2}}$	$k^2(\lambda+t_1)$	0
$2^-\mathcal{A}^\parallel\dagger^{\alpha\beta\chi}$	0	0	$\lambda+k^2 r_1+\frac{t_1}{2}$

	$1^+\mathcal{A}^\parallel_{\alpha\beta}$	$1^+\mathcal{A}^\perp_{\alpha\beta}$	$1^+f^\parallel_{\alpha\beta}$	$1^-\mathcal{B}_\alpha$	$1^-\mathcal{A}^\parallel_\alpha$	$1^-\mathcal{A}^\perp_\alpha$	$1^-f^\parallel_\alpha$	$1^-f^\perp_\alpha$
$1^+\mathcal{A}^\parallel\dagger^{\alpha\beta}$	$\frac{1}{6}(-6\lambda+6k^2(2r_3+r_5)+t_1+4t_2)$	$-\frac{6\lambda+t_1-2t_2}{3\sqrt{2}}$	$-\frac{i k(6\lambda+t_1-2t_2)}{3\sqrt{2}}$	0	0	0	0	0
$1^+\mathcal{A}^\perp\dagger^{\alpha\beta}$	$-\frac{6\lambda+t_1-2t_2}{3\sqrt{2}}$	$\frac{t_1+t_2}{3}$	$\frac{1}{3}i k(t_1+t_2)$	0	0	0	0	0
$1^+f^\parallel\dagger^{\alpha\beta}$	$\frac{i k(6\lambda+t_1-2t_2)}{3\sqrt{2}}$	$-\frac{1}{3}i k(t_1+t_2)$	$\frac{1}{3}k^2(t_1+t_2)$	0	0	0	0	0
$1^-\mathcal{B}\dagger^\alpha$	0	0	0	$-6\lambda+\frac{v}{2}+2k^2(2(r_1+r_4+r_5)+\xi)$	$\frac{1}{6}(-12\lambda+v+4k^2(3(r_1+r_4+r_5)+\xi))$	$\frac{12\lambda-v-4k^2\xi}{6\sqrt{2}}$	0	$-\frac{1}{6}i k(-12\lambda+v+4k^2\xi)$
$1^-\mathcal{A}^\parallel\dagger^\alpha$	0	0	0	$\frac{1}{6}(-12\lambda+v+4k^2(3(r_1+r_4+r_5)+\xi))$	$\frac{1}{18}(-6\lambda+v+3t_1+2k^2(9(r_1+r_4+r_5)+2\xi))$	$\frac{24\lambda-v+6t_1-4k^2\xi}{18\sqrt{2}}$	0	$-\frac{1}{18}i k(-24\lambda+v-6t_1+4k^2\xi)$
$1^-\mathcal{A}^\perp\dagger^\alpha$	0	0	0	$\frac{12\lambda-v-4k^2\xi}{6\sqrt{2}}$	$\frac{24\lambda-v+6t_1-4k^2\xi}{18\sqrt{2}}$	$\frac{1}{36}(12\lambda+v+12t_1+4k^2\xi)$	0	$\frac{i k(12\lambda+v+12t_1+4k^2\xi)}{18\sqrt{2}}$
$1^-f^\parallel\dagger^\alpha$	0	0	0	0	0	0	0	0
$1^-f^\perp\dagger^\alpha$	0	0	0	$\frac{1}{6}i k(-12\lambda+v+4k^2\xi)$	$\frac{1}{18}i k(-24\lambda+v-6t_1+4k^2\xi)$	$-\frac{i k(12\lambda+v+12t_1+4k^2\xi)}{18\sqrt{2}}$	0	$\frac{1}{18}k^2(12\lambda+v+12t_1+4k^2\xi)$

$$
\begin{aligned}
\mathcal{S} ==& \iiiint(\phi\,\rho+\sigma^{\alpha\beta\chi}\,\mathcal{A}_{\alpha\beta\chi}+\tau^{\alpha\beta}\,f_{\alpha\beta}+\mathcal{T}^\alpha\,\mathcal{B}_\alpha-\tfrac{1}{18}v(\mathcal{A}^{\alpha\beta}{}_\alpha\,\mathcal{A}_\beta{}^\chi{}_\chi-9\,\mathcal{B}_\alpha\,\mathcal{B}^\alpha+18\,\mathcal{B}^\alpha\,\partial_\alpha\phi-6\,\mathcal{B}^\alpha\,\partial_\alpha f^\beta{}_\beta+6\,\mathcal{A}_\alpha{}^\beta{}_\beta\,(\mathcal{B}^\alpha-\partial^\alpha\phi)-9\,\partial_\alpha\phi\,\partial^\alpha\phi+6\,\partial_\alpha f^\beta{}_\beta \\
&\partial^\alpha\phi+6\,\mathcal{B}^\alpha\,\partial_\beta f_\alpha{}^\beta-6\,\partial^\alpha\phi\,\partial_\beta f_\alpha{}^\beta-2\,\mathcal{A}_\alpha{}^\chi{}_\chi\,\partial_\beta f^{\alpha\beta}+2\,\mathcal{A}_\beta{}^\chi{}_\chi\,\partial^\beta f^\alpha{}_\alpha-\partial_\beta f^\chi{}_\chi\partial^\beta f^\alpha{}_\alpha-\partial_\beta f^{\alpha\beta}\partial_\chi f_\alpha{}^\chi+2\,\partial^\beta f^\alpha{}_\alpha\partial_\chi f_\beta{}^\chi)+\tfrac{1}{6}\lambda \\
&(8\,\mathcal{A}^{\alpha\beta}{}_\alpha\,\mathcal{A}_\beta{}^\chi{}_\chi+24\,\mathcal{A}_\alpha{}^\beta{}_\beta\,\mathcal{B}^\alpha-36\,\mathcal{B}_\alpha\,\mathcal{B}^\alpha-36\,\partial_\alpha\mathcal{B}^\alpha-72\,\phi\,\partial_\alpha\mathcal{B}^\alpha+12\,f^{\alpha\beta}\,\partial_\beta\mathcal{A}_\alpha{}^\chi{}_\chi-12\,\partial_\beta\mathcal{A}^{\alpha\beta}{}_\alpha-24\,\phi\,\partial_\beta\mathcal{A}^{\alpha\beta}{}_\alpha-4\,\mathcal{A}_\alpha{}^\chi{}_\chi\,\partial_\beta f^{\alpha\beta}- \\
&24\,f^{\alpha\beta}\,\partial_\beta\mathcal{B}_\alpha+24\,f^\alpha{}_\alpha\,\partial_\beta\mathcal{B}^\beta+4\,\mathcal{A}_\beta{}^\chi{}_\chi\,\partial^\beta f^\alpha{}_\alpha-2\,\partial_\beta f^\chi{}_\chi\partial^\beta f^\alpha{}_\alpha-12\,f^{\alpha\beta}\,\partial_\chi\mathcal{A}_\alpha{}^\chi{}_\beta+12\,f^\alpha{}_\alpha\,\partial_\chi\mathcal{A}^{\beta\chi}{}_\beta-2\,\partial_\beta f^{\alpha\beta}\partial_\chi f_\alpha{}^\chi+4\,\partial^\beta f^\alpha{}_\alpha \\
&\partial_\chi f_\beta{}^\chi-6\,\partial_\alpha f_{\beta\chi}\partial^\chi f^{\alpha\beta}-3\,\partial_\alpha f_{\chi\beta}\partial^\chi f^{\alpha\beta}+3\,\partial_\beta f_{\alpha\chi}\partial^\chi f^{\alpha\beta}+3\,\partial_\chi f_{\alpha\beta}\partial^\chi f^{\alpha\beta}+3\,\partial_\chi f_{\beta\alpha}\partial^\chi f^{\alpha\beta}+12\,\mathcal{A}_{\alpha\chi\beta}(\mathcal{A}^{\alpha\beta\chi}+\partial^\chi f^{\alpha\beta}))+ \\
&\tfrac{1}{6}t_2((4\,\mathcal{A}_{\beta\chi\alpha}+2\,\partial_\alpha f_{\beta\chi}-\partial_\alpha f_{\chi\beta}-\partial_\beta f_{\alpha\chi}+\partial_\chi f_{\alpha\beta}-\partial_\chi f_{\beta\alpha})\partial^\chi f^{\alpha\beta}-4\,\mathcal{A}_{\alpha\chi\beta}(\mathcal{A}^{\alpha\beta\chi}+\partial^\chi f^{\alpha\beta})+2\,\mathcal{A}_{\alpha\beta\chi}(\mathcal{A}^{\alpha\beta\chi}+2\,\partial^\chi f^{\alpha\beta}))+ \\
&\tfrac{1}{3}t_1(\mathcal{A}^{\alpha\beta}{}_\alpha\,\mathcal{A}_\beta{}^\chi{}_\chi-2\,\mathcal{A}_\alpha{}^\chi{}_\chi\,\partial_\beta f^{\alpha\beta}+2\,\mathcal{A}_\beta{}^\chi{}_\chi\,\partial^\beta f^\alpha{}_\alpha-\partial_\beta f^\chi{}_\chi\partial^\beta f^\alpha{}_\alpha-\partial_\beta f^{\alpha\beta}\partial_\chi f_\alpha{}^\chi+2\,\partial^\beta f^\alpha{}_\alpha\partial_\chi f_\beta{}^\chi+2\,\mathcal{A}_{\beta\chi\alpha}\,\partial^\chi f^{\alpha\beta}-2\,\partial_\alpha f_{\beta\chi}\partial^\chi f^{\alpha\beta}- \\
&2\,\partial_\alpha f_{\chi\beta}\partial^\chi f^{\alpha\beta}+\partial_\beta f_{\alpha\chi}\partial^\chi f^{\alpha\beta}+2\,\partial_\chi f_{\alpha\beta}\partial^\chi f^{\alpha\beta}+\partial_\chi f_{\beta\alpha}\partial^\chi f^{\alpha\beta}+\mathcal{A}_{\alpha\beta\chi}(\mathcal{A}^{\alpha\beta\chi}+2\,\partial^\chi f^{\alpha\beta})+\mathcal{A}_{\alpha\chi\beta}(\mathcal{A}^{\alpha\beta\chi}+4\,\partial^\chi f^{\alpha\beta}))+ \\
&r_5(4\,\partial_\alpha\mathcal{A}_\beta{}^\chi{}_\chi\,\partial^\beta\mathcal{B}^\alpha-4\,\partial_\alpha\mathcal{B}_\beta\partial^\beta\mathcal{B}^\alpha-4\,\partial_\beta\mathcal{A}_\alpha{}^\chi{}_\chi\,\partial^\beta\mathcal{B}^\alpha+4\,\partial_\beta\mathcal{B}_\alpha\partial^\beta\mathcal{B}^\alpha+4\,\partial^\beta\mathcal{B}^\alpha\partial_\chi\mathcal{A}_\alpha{}^\chi{}_\beta-4\,\partial^\beta\mathcal{B}^\alpha\partial_\chi\mathcal{A}_\beta{}^\chi{}_\alpha+\partial_\beta\mathcal{A}_\chi{}^\delta{}_\delta\,\partial^\chi\mathcal{A}^{\alpha\beta}{}_\alpha- \\
&\partial_\chi\mathcal{A}_\beta{}^\delta{}_\delta\,\partial^\chi\mathcal{A}^{\alpha\beta}{}_\alpha-\partial_\alpha\mathcal{A}^{\alpha\beta\chi}\,\partial_\delta\mathcal{A}_\beta{}^\delta{}_\chi+2\,\partial^\chi\mathcal{A}^{\alpha\beta}{}_\alpha\partial_\delta\mathcal{A}_\beta{}^\delta{}_\chi+\partial_\alpha\mathcal{A}^{\alpha\beta\chi}\,\partial_\delta\mathcal{A}_\chi{}^\delta{}_\beta-2\,\partial^\chi\mathcal{A}^{\alpha\beta}{}_\alpha\partial_\delta\mathcal{A}_\chi{}^\delta{}_\beta)+r_4(-4\,\partial_\alpha\mathcal{A}_\beta{}^\chi{}_\chi\,\partial^\beta\mathcal{B}^\alpha+ \\
&4\,\partial_\alpha\mathcal{B}_\beta\partial^\beta\mathcal{B}^\alpha-4\,\partial_\beta\mathcal{A}_\alpha{}^\chi{}_\chi\,\partial^\beta\mathcal{B}^\alpha+4\,\partial_\beta\mathcal{B}_\alpha\partial^\beta\mathcal{B}^\alpha+4\,\partial^\beta\mathcal{B}^\alpha\partial_\chi\mathcal{A}_\alpha{}^\chi{}_\beta+4\,\partial^\beta\mathcal{B}^\alpha\partial_\chi\mathcal{A}_\beta{}^\chi{}_\alpha+8\,\partial_\alpha\mathcal{B}^\alpha(2\,\partial_\beta\mathcal{B}^\beta+\partial_\chi\mathcal{A}^{\beta\chi}{}_\beta)- \\
&\partial_\beta\mathcal{A}_\chi{}^\delta{}_\delta\,\partial^\chi\mathcal{A}^{\alpha\beta}{}_\alpha-\partial_\chi\mathcal{A}_\beta{}^\delta{}_\delta\,\partial^\chi\mathcal{A}^{\alpha\beta}{}_\alpha-\partial_\alpha\mathcal{A}^{\alpha\beta\chi}\,\partial_\delta\mathcal{A}_\beta{}^\delta{}_\chi+2\,\partial^\chi\mathcal{A}^{\alpha\beta}{}_\alpha\partial_\delta\mathcal{A}_\beta{}^\delta{}_\chi-\partial_\alpha\mathcal{A}^{\alpha\beta\chi}\,\partial_\delta\mathcal{A}_\chi{}^\delta{}_\beta+2\,\partial^\chi\mathcal{A}^{\alpha\beta}{}_\alpha\partial_\delta\mathcal{A}_\chi{}^\delta{}_\beta)+ \\
&\tfrac{2}{9}\xi(6\,\partial_\alpha\mathcal{A}_\beta{}^\chi{}_\chi\,\partial^\beta\mathcal{B}^\alpha-9\,\partial_\alpha\mathcal{B}_\beta\partial^\beta\mathcal{B}^\alpha-6\,\partial_\beta\mathcal{A}_\alpha{}^\chi{}_\chi\,\partial^\beta\mathcal{B}^\alpha+9\,\partial_\beta\mathcal{B}_\alpha\partial^\beta\mathcal{B}^\alpha+2\,\partial_\beta\partial^\chi f^{\alpha\beta}\,\partial_\chi\mathcal{A}_\alpha{}^\delta{}_\delta+6\,\partial^\beta\mathcal{B}^\alpha\,\partial_\chi\partial_\alpha f_\beta{}^\chi- \\
&6\,\partial^\beta\mathcal{B}^\alpha\,\partial_\chi\partial_\beta f_\alpha{}^\chi+\partial_\beta\mathcal{A}_\chi{}^\delta{}_\delta\,\partial^\chi\mathcal{A}^{\alpha\beta}{}_\alpha-\partial_\chi\mathcal{A}_\beta{}^\delta{}_\delta\,\partial^\chi\mathcal{A}^{\alpha\beta}{}_\alpha-2\,\partial_\alpha\mathcal{A}_\chi{}^\delta{}_\delta\,\partial^\chi\partial_\beta f^{\alpha\beta}-\partial_\beta\partial^\chi f^{\alpha\beta}\,\partial_\delta\partial_\alpha f_\chi{}^\delta+\partial_\beta\partial^\chi f^{\alpha\beta}\,\partial_\delta\partial_\chi f_\alpha{}^\delta)+ \\
&\tfrac{1}{3}r_2(4\,\partial_\beta\mathcal{A}_{\alpha\chi\delta}-2\,\partial_\beta\mathcal{A}_{\alpha\delta\chi}+2\,\partial_\beta\mathcal{A}_{\chi\delta\alpha}-\partial_\chi\mathcal{A}_{\alpha\beta\delta}+\partial_\delta\mathcal{A}_{\alpha\beta\chi}-2\,\partial_\delta\mathcal{A}_{\alpha\chi\beta})\partial^\delta\mathcal{A}^{\alpha\beta\chi}- \\
&4r_3(\partial_\alpha\mathcal{B}^\alpha\partial_\beta\mathcal{B}^\beta-2\,\partial_\alpha\mathcal{A}_\beta{}^\chi{}_\chi\,\partial^\beta\mathcal{B}^\alpha+2\,\partial_\alpha\mathcal{B}_\beta\partial^\beta\mathcal{B}^\alpha+2\,\partial^\beta\mathcal{B}^\alpha\partial_\chi\mathcal{A}_\beta{}^\chi{}_\alpha+\partial_\beta\mathcal{A}_{\chi\delta\alpha}\partial^\delta\mathcal{A}^{\alpha\beta\chi})+ \\
&\tfrac{2}{3}r_1(6\,\partial_\alpha\mathcal{B}^\alpha\partial_\beta\mathcal{B}^\beta-6\,\partial_\alpha\mathcal{A}_\beta{}^\chi{}_\chi\,\partial^\beta\mathcal{B}^\alpha+6\,\partial_\alpha\mathcal{B}_\beta\partial^\beta\mathcal{B}^\alpha-6\,\partial_\beta\mathcal{A}_\alpha{}^\chi{}_\chi\,\partial^\beta\mathcal{B}^\alpha+6\,\partial_\beta\mathcal{B}_\alpha\partial^\beta\mathcal{B}^\alpha+ \\
&6\,\partial^\beta\mathcal{B}^\alpha\partial_\chi\mathcal{A}_\alpha{}^\chi{}_\beta+6\,\partial^\beta\mathcal{B}^\alpha\partial_\chi\mathcal{A}_\beta{}^\chi{}_\alpha-2\,\partial_\beta\mathcal{A}_{\alpha\chi\delta}\partial^\delta\mathcal{A}^{\alpha\beta\chi}+\partial_\beta\mathcal{A}_{\alpha\delta\chi}\partial^\delta\mathcal{A}^{\alpha\beta\chi}+2\,\partial_\beta\mathcal{A}_{\chi\delta\alpha}\partial^\delta\mathcal{A}^{\alpha\beta\chi}- \\
&\partial_\chi\mathcal{A}_{\alpha\beta\delta}\partial^\delta\mathcal{A}^{\alpha\beta\chi}+\partial_\delta\mathcal{A}_{\alpha\beta\chi}\partial^\delta\mathcal{A}^{\alpha\beta\chi}+\partial_\delta\mathcal{A}_{\alpha\chi\beta}\partial^\delta\mathcal{A}^{\alpha\beta\chi}))[t,x,y,z]\,dz\,dy\,dx\,dt
\end{aligned}
$$

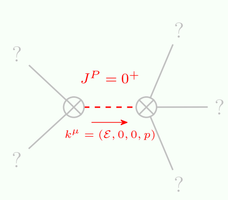
	$0^+\mathcal{B}$	$0^+\phi$	$0^+\mathcal{A}^\parallel$	$0^+f^\parallel$	$0^+f^\perp$	$0^-\mathcal{A}^\parallel$
$0^+\mathcal{B}\dagger$	$-6\lambda+\frac{v}{2}+12k^2(r_1-r_3+2r_4)$	$\frac{1}{2}i k(12\lambda-v)$	$\frac{12\lambda-v-24k^2(r_1-r_3+2r_4)}{2\sqrt{6}}$	$\frac{i k(12\lambda-v)}{2\sqrt{3}}$	0	0
$0^+\phi\dagger$	$k(-6i\lambda+\frac{i v}{2})$	$\frac{k^2 v}{2}$	$-\frac{i k(12\lambda-v)}{2\sqrt{6}}$	$-\frac{k^2 v}{2\sqrt{3}}$	0	0
$0^+\mathcal{A}^\parallel\dagger$	$\frac{12\lambda-v-24k^2(r_1-r_3+2r_4)}{2\sqrt{6}}$	$\frac{i k(12\lambda-v)}{2\sqrt{6}}$	$-\lambda+\frac{v}{12}+2k^2(r_1-r_3+2r_4)$	$\frac{i k(12\lambda-v)}{6\sqrt{2}}$	0	0
$0^+f^\parallel\dagger$	$-\frac{i k(12\lambda-v)}{2\sqrt{3}}$	$-\frac{k^2 v}{2\sqrt{3}}$	$-\frac{i k(12\lambda-v)}{6\sqrt{2}}$	$\frac{k^2 v}{6}$	0	0
$0^+f^\perp\dagger$	0	0	0	0	0	0
$0^-\mathcal{A}^\parallel\dagger$	0	0	0	0	0	$-2\lambda+k^2 r_2+t_2$

Spin-parity form	Covariant form	Multiplicities
$0^+\tau^\perp == 0$	$\partial_\beta\partial_\alpha\tau^{\alpha\beta} == 0$	1
$0^+\rho+0^+\tau^\parallel == 0$	$\partial_\alpha\partial^\alpha\rho+\partial_\beta\partial^\beta\tau^\alpha{}_\alpha == \partial_\beta\partial_\alpha\tau^{\alpha\beta}$	1
$2\,0^+\sigma^\parallel+0^+\mathcal{T} == 0$	$\partial_\alpha\mathcal{T}^\alpha == 2\,\partial_\beta\sigma^\alpha{}_\alpha{}^\beta$	1
$2\,i\,k\,1^-\sigma^{\parallel\alpha}+1^-\tau^{\perp\alpha}-i\,k\,1^-\mathcal{T}^\alpha == 0$	$\partial_\chi\partial^\chi\partial_\beta\tau^{\alpha\beta}+\partial_\chi\partial^\alpha\partial_\beta\partial^\alpha\mathcal{T}^\beta+2\,\partial_\delta\partial^\delta\partial_\chi\partial_\beta\sigma^{\beta\alpha\chi} == \partial_\chi\partial^\alpha\partial_\beta\tau^{\beta\chi}+\partial_\chi\partial^\chi\partial_\beta\partial^\beta\mathcal{T}^\alpha+2(\partial_\delta\partial^\delta\partial_\chi\partial^\alpha\sigma^\chi{}_\beta{}^\beta+\partial_\delta\partial^\delta\partial_\chi\partial^\chi\sigma^{\beta\alpha}{}_\beta)$	3
$1^-\tau^{\parallel\alpha} == 0$	$\partial_\chi\partial_\beta\partial^\alpha\tau^{\beta\chi} == \partial_\chi\partial^\chi\partial_\beta\tau^{\beta\alpha}$	3
$2\,1^-\sigma^{\perp\alpha} == 2\,1^-\sigma^{\parallel\alpha}+1^-\mathcal{T}^\alpha$	$\partial_\beta\partial^\alpha\mathcal{T}^\beta == \partial_\beta\partial^\beta\mathcal{T}^\alpha+2(\partial_\chi\partial^\alpha\sigma^\chi{}_\beta{}^\beta+\partial_\chi\partial^\chi\sigma^{\beta\alpha}{}_\beta)$	3
$i\,k\,1^+\sigma^{\perp\alpha\beta}+1^+\tau^{\parallel\alpha\beta} == 0$	$\partial_\chi\partial^\alpha\tau^{\beta\chi}+\partial_\chi\partial^\beta\tau^{\chi\alpha}+\partial_\chi\partial^\chi\tau^{\alpha\beta}+2\,\partial_\delta\partial_\chi\partial^\alpha\sigma^{\chi\beta\delta}+2\,\partial_\delta\partial^\delta\partial_\chi\sigma^{\alpha\chi\beta} == \partial_\chi\partial^\alpha\tau^{\chi\beta}+\partial_\chi\partial^\beta\tau^{\alpha\chi}+\partial_\chi\partial^\chi\tau^{\beta\alpha}+2\,\partial_\delta\partial_\chi\partial^\beta\sigma^{\chi\alpha\delta}$	3
Total expected gauge generators:		15

	$2^+\sigma^\parallel_{\alpha\beta}$	$2^+\tau^\parallel_{\alpha\beta}$	$2^-\sigma^\parallel_{\alpha\beta\chi}$
$2^+\sigma^\parallel\dagger^{\alpha\beta}$	$\frac{k^2(\lambda+t_1)}{k^4(2r_1-2r_3+r_4)(\lambda+t_1)-\frac{1}{2}k^2\lambda(2\lambda+t_1)}$	$\frac{i\sqrt{2}(2\lambda+t_1)}{2k^3(2r_1-2r_3+r_4)(\lambda+t_1)-k\lambda(2\lambda+t_1)}$	0
$2^+\tau^\parallel\dagger^{\alpha\beta}$	$-\frac{i\sqrt{2}(2\lambda+t_1)}{2k^3(2r_1-2r_3+r_4)(\lambda+t_1)-k\lambda(2\lambda+t_1)}$	$\frac{\lambda+k^2(2r_1-2r_3+r_4)+\frac{t_1}{2}}{k^4(2r_1-2r_3+r_4)(\lambda+t_1)-\frac{1}{2}k^2\lambda(2\lambda+t_1)}$	0
$2^-\sigma^\parallel\dagger^{\alpha\beta\chi}$	0	0	$\frac{1}{\lambda+k^2 r_1+\frac{t_1}{2}}$

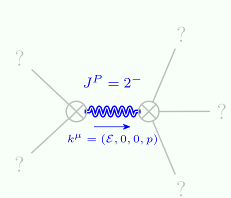
	$0^+\mathcal{T}$	$0^+\rho$	$0^+\sigma^\parallel$	$0^+\tau^\parallel$	$0^+\tau^\perp$	$0^-\sigma^\parallel$
$0^+\mathcal{T}\dagger$	$\frac{6v}{49(-12\lambda^2+\lambda v+2k^2 v(r_1-r_3+2r_4))}$	$\frac{-36i\lambda+3iv}{28k(-12\lambda^2+\lambda v+2k^2 v(r_1-r_3+2r_4))}$	$-\frac{\sqrt{6}\,v}{49(-12\lambda^2+\lambda v+2k^2 v(r_1-r_3+2r_4))}$	$\frac{i\sqrt{3}(12\lambda-v)}{28k(-12\lambda^2+\lambda v+2k^2 v(r_1-r_3+2r_4))}$	0	0
$0^+\rho\dagger$	$\frac{3i(12\lambda-v)}{28k(-12\lambda^2+\lambda v+2k^2 v(r_1-r_3+2r_4))}$	$\frac{3(-12\lambda+v+24k^2(r_1-r_3+2r_4))}{32k^2(-12\lambda^2+\lambda v+2k^2 v(r_1-r_3+2r_4))}$	$-\frac{i(36\lambda-3v)}{28\sqrt{6}\,k(-12\lambda^2+\lambda v+2k^2 v(r_1-r_3+2r_4))}$	$-\frac{\sqrt{3}(-12\lambda+v+24k^2(r_1-r_3+2r_4))}{32k^2(-12\lambda^2+\lambda v+2k^2 v(r_1-r_3+2r_4))}$	0	0
$0^+\sigma^\parallel\dagger$	$\frac{\sqrt{6}\,v}{588\lambda^2-49v(\lambda+2k^2(r_1-r_3+2r_4))}$	$\frac{i\sqrt{\frac{3}{2}}(12\lambda-v)}{28k(-12\lambda^2+\lambda v+2k^2 v(r_1-r_3+2r_4))}$	$\frac{v}{49(-12\lambda^2+\lambda v+2k^2 v(r_1-r_3+2r_4))}$	$\frac{i}{56\sqrt{2}\left(\frac{k\lambda}{2}+\frac{k^3 v(r_1-r_3+2r_4)}{-12\lambda+v}\right)}$	0	0
$0^+\tau^\parallel\dagger$	$\frac{1}{-\frac{28ik\lambda}{\sqrt{3}}+\frac{56ik^3 v(r_1-r_3+2r_4)}{\sqrt{3}(12\lambda-v)}}$	$\frac{\sqrt{3}(-12\lambda+v+24k^2(r_1-r_3+2r_4))}{32k^2(12\lambda^2-v(\lambda+2k^2(r_1-r_3+2r_4)))}$	$-\frac{i}{56\sqrt{2}\left(\frac{k\lambda}{2}+\frac{k^3 v(r_1-r_3+2r_4)}{-12\lambda+v}\right)}$	$\frac{-12\lambda+v+24k^2(r_1-r_3+2r_4)}{32k^2(-12\lambda^2+\lambda v+2k^2 v(r_1-r_3+2r_4))}$	0	0
$0^+\tau^\perp\dagger$	0	0	0	0	0	0
$0^-\sigma^\parallel\dagger$	0	0	0	0	0	$\frac{1}{-2\lambda+k^2 r_2+t_2}$

Massive and massless spectra



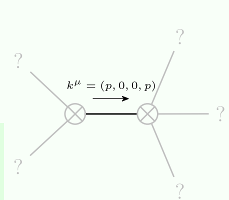
Massive particle

Pole residue:	$\frac{1}{56}\left(-\frac{7}{\lambda}+\frac{84}{v}+\frac{4}{r_1-r_3+2r_4}\right)>0$
Square mass:	$\frac{12\lambda^2-\lambda v}{2v r_1-2v r_3+4v r_4}>0$
Spin:	0
Parity:	Even



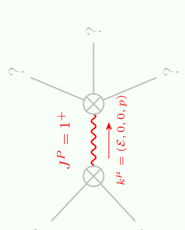
Massive particle

Pole residue:	$-\frac{1}{r_1}>0$
Square mass:	$-\frac{2\lambda+t_1}{2r_1}>0$
Spin:	2
Parity:	Odd



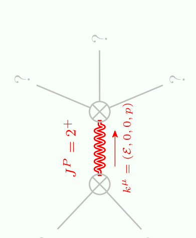
Massless particle

Pole residue:	$-\frac{1}{\lambda}>0$
Polarisations:	2



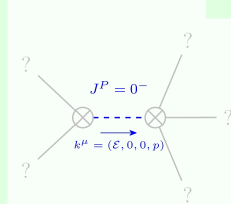
Massive particle

Pole residue:	$\frac{3(\ldots)}{(2r_3+r_5)(t_1+t_2)(12\lambda^2+\ldots)}>0$ [illegible]
Square mass:	$\frac{3(2\lambda+t_1)(2\lambda-t_2)}{2(2r_3+r_5)(t_1+t_2)}>0$
Spin:	1
Parity:	Even



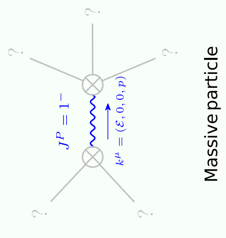
Massive particle

Pole residue:	$\frac{\lambda^2+(2r_1-2r_3+r_4)t_1+\lambda(4r_1-4r_3+2r_4+t_1)}{\lambda(2r_1-2r_3+r_4)(\lambda+t_1)}>0$
Square mass:	$\frac{\lambda(2\lambda+t_1)}{2(2r_1-2r_3+r_4)(\lambda+t_1)}>0$
Spin:	2
Parity:	Even



Massive particle

Pole residue:	$-\frac{1}{r_2}>0$
Square mass:	$\frac{2\lambda-t_2}{r_2}>0$
Spin:	0
Parity:	Odd



Massive particle

Pole residue:

$$
\begin{aligned}
&(6(180\lambda r_1^3+15vr_1^3+540\lambda r_1^2 r_4+45vr_1^2 r_4+540\lambda r_1 r_4^2+45vr_1 r_4^2+180\lambda r_4^3+ \\
&15vr_4^3+540\lambda r_1^2 r_5+45vr_1^2 r_5+1080\lambda r_1 r_4 r_5+90vr_1 r_4 r_5+ \\
&540\lambda r_4^2 r_5+45vr_4^2 r_5+540\lambda r_1 r_5^2+45vr_1 r_5^2+540\lambda r_4 r_5^2+45vr_4 r_5^2+ \\
&180\lambda r_5^3+15vr_5^3+180r_1^3 t_1+540r_1^2 r_4 t_1+540r_1 r_4^2 t_1+180r_4^3 t_1+ \\
&540r_1^2 r_5 t_1+1080r_1 r_4 r_5 t_1+540r_4^2 r_5 t_1+540r_1 r_5^2 t_1+540r_4 r_5^2 t_1+ \\
&180r_5^3 t_1-72\lambda^2 r_1\xi+2\lambda v r_1\xi+408\lambda r_1^2\xi-7vr_1^2\xi-72\lambda^2 r_4\xi+ \\
&2\lambda v r_4\xi+816\lambda r_1 r_4\xi-14vr_1 r_4\xi+408\lambda r_4^2\xi-7vr_4^2\xi-72\lambda^2 r_5\xi+ \\
&2\lambda v r_5\xi+816\lambda r_1 r_5\xi-14vr_1 r_5\xi+816\lambda r_4 r_5\xi-14vr_4 r_5\xi+ \\
&408\lambda r_5^2\xi-7vr_5^2\xi-60\lambda r_1 t_1\xi+vr_1 t_1\xi+162r_1^2 t_1\xi-60\lambda r_4 t_1\xi+ \\
&vr_4 t_1\xi+324r_1 r_4 t_1\xi+162r_4^2 t_1\xi-60\lambda r_5 t_1\xi+vr_5 t_1\xi+324r_1 r_5 t_1\xi+ \\
&324r_4 r_5 t_1\xi+162r_5^2 t_1\xi-12r_1 t_1^2\xi-12r_4 t_1^2\xi-12r_5 t_1^2\xi-24\lambda^2\xi^2+ \\
&84\lambda r_1\xi^2+84\lambda r_4\xi^2+84\lambda r_5\xi^2-24\lambda t_1\xi^2+42r_1 t_1\xi^2+42r_4 t_1\xi^2+ \\
&42r_5 t_1\xi^2-6t_1^2\xi^2+\tfrac{15}{2}r_1^2\sqrt{(96(12\lambda-v)(r_1+r_4+r_5)(2\lambda+t_1)\xi+} \\
&\quad\overline{4(v(r_1+r_4+r_5)+12\lambda(r_1+r_4+r_5+\xi)+6t_1(2r_1+2r_4+2r_5+\xi))^2)}+ \\
&15r_1 r_4\sqrt{(96(12\lambda-v)(r_1+r_4+r_5)(2\lambda+t_1)\xi+} \\
&\quad\overline{4(v(r_1+r_4+r_5)+12\lambda(r_1+r_4+r_5+\xi)+6t_1(2r_1+2r_4+2r_5+\xi))^2)}+ \\
&\tfrac{15}{2}r_4^2\sqrt{(96(12\lambda-v)(r_1+r_4+r_5)(2\lambda+t_1)\xi+} \\
&\quad\overline{4(v(r_1+r_4+r_5)+12\lambda(r_1+r_4+r_5+\xi)+6t_1(2r_1+2r_4+2r_5+\xi))^2)}+ \\
&15r_1 r_5\sqrt{(96(12\lambda-v)(r_1+r_4+r_5)(2\lambda+t_1)\xi+} \\
&\quad\overline{4(v(r_1+r_4+r_5)+12\lambda(r_1+r_4+r_5+\xi)+6t_1(2r_1+2r_4+2r_5+\xi))^2)}+ \\
&15r_4 r_5\sqrt{(96(12\lambda-v)(r_1+r_4+r_5)(2\lambda+t_1)\xi+} \\
&\quad\overline{4(v(r_1+r_4+r_5)+12\lambda(r_1+r_4+r_5+\xi)+6t_1(2r_1+2r_4+2r_5+\xi))^2)}+ \\
&\tfrac{15}{2}r_5^2\sqrt{(96(12\lambda-v)(r_1+r_4+r_5)(2\lambda+t_1)\xi+} \\
&\quad\overline{4(v(r_1+r_4+r_5)+12\lambda(r_1+r_4+r_5+\xi)+6t_1(2r_1+2r_4+2r_5+\xi))^2)}- \\
&\lambda\xi\sqrt{(96(12\lambda-v)(r_1+r_4+r_5)(2\lambda+t_1)\xi+} \\
&\quad\overline{4(v(r_1+r_4+r_5)+12\lambda(r_1+r_4+r_5+\xi)+6t_1(2r_1+2r_4+2r_5+\xi))^2)}+ \\
&\tfrac{7}{2}r_1\xi\sqrt{(96(12\lambda-v)(r_1+r_4+r_5)(2\lambda+t_1)\xi+} \\
&\quad\overline{4(v(r_1+r_4+r_5)+12\lambda(r_1+r_4+r_5+\xi)+6t_1(2r_1+2r_4+2r_5+\xi))^2)}+ \\
&\tfrac{7}{2}r_4\xi\sqrt{(96(12\lambda-v)(r_1+r_4+r_5)(2\lambda+t_1)\xi+} \\
&\quad\overline{4(v(r_1+r_4+r_5)+12\lambda(r_1+r_4+r_5+\xi)+6t_1(2r_1+2r_4+2r_5+\xi))^2)}+ \\
&\tfrac{7}{2}r_5\xi\sqrt{(96(12\lambda-v)(r_1+r_4+r_5)(2\lambda+t_1)\xi+} \\
&\quad\overline{4(v(r_1+r_4+r_5)+12\lambda(r_1+r_4+r_5+\xi)+6t_1(2r_1+2r_4+2r_5+\xi))^2)}- \\
&\tfrac{1}{2}t_1\xi\sqrt{(96(12\lambda-v)(r_1+r_4+r_5)(2\lambda+t_1)\xi+4(v(r_1+r_4+r_5)+12} \\
&\quad\overline{\lambda(r_1+r_4+r_5+\xi)+6t_1(2r_1+2r_4+2r_5+\xi))^2)}))/ \\
&((r_1+r_4+r_5)\sqrt{(144\lambda^2 r_1^2+24\lambda v r_1^2+v^2 r_1^2+288\lambda^2 r_1 r_4+48\lambda v r_1 r_4+} \\
&\quad 2v^2 r_1 r_4+144\lambda^2 r_4^2+24\lambda v r_4^2+v^2 r_4^2+288\lambda^2 r_1 r_5+48\lambda v r_1 r_5+ \\
&\quad 2v^2 r_1 r_5+288\lambda^2 r_4 r_5+48\lambda v r_4 r_5+2v^2 r_4 r_5+144\lambda^2 r_5^2+24\lambda v r_5^2+ \\
&\quad v^2 r_5^2+288\lambda r_1^2 t_1+24vr_1^2 t_1+576\lambda r_1 r_4 t_1+48vr_1 r_4 t_1+288\lambda r_4^2 t_1+ \\
&\quad 24vr_4^2 t_1+576\lambda r_1 r_5 t_1+48vr_1 r_5 t_1+576\lambda r_4 r_5 t_1+48vr_4 r_5 t_1+ \\
&\quad 288\lambda r_5^2 t_1+24vr_5^2 t_1+144r_1^2 t_1^2+288r_1 r_4 t_1^2+144r_4^2 t_1^2+ \\
&\quad 288r_1 r_5 t_1^2+288r_4 r_5 t_1^2+144r_5^2 t_1^2+864\lambda^2 r_1\xi-24\lambda v r_1\xi+ \\
&\quad 864\lambda^2 r_4\xi-24\lambda v r_4\xi+864\lambda^2 r_5\xi-24\lambda v r_5\xi+720\lambda r_1 t_1\xi- \\
&\quad 12vr_1 t_1\xi+720\lambda r_4 t_1\xi-12vr_4 t_1\xi+720\lambda r_5 t_1\xi-12vr_5 t_1\xi+ \\
&\quad \overline{144r_1 t_1^2\xi+144r_4 t_1^2\xi+144r_5 t_1^2\xi+144\lambda^2\xi^2+144\lambda t_1\xi^2+36t_1^2\xi^2)} \\
&\quad(60\lambda r_1+5vr_1+60\lambda r_4+5vr_4+60\lambda r_5+5vr_5+60r_1 t_1+60r_4 t_1+ \\
&\quad 60r_5 t_1+60\lambda\xi-28r_1\xi-28r_4\xi-28r_5\xi+30t_1\xi+ \\
&\quad \tfrac{5}{2}\sqrt{(96(12\lambda-v)(r_1+r_4+r_5)(2\lambda+t_1)\xi+4(v(r_1+r_4+r_5)+12\lambda} \\
&\quad\quad\overline{(r_1+r_4+r_5+\xi)+6t_1(2r_1+2r_4+2r_5+\xi))^2)}))>0
\end{aligned}
$$

Square mass:

$$
\begin{aligned}
&-\frac{1}{8(r_1+r_4+r_5)\xi}(12\lambda r_1+vr_1+12\lambda r_4+vr_4+12\lambda r_5+vr_5+12r_1 t_1+12r_4 t_1+ \\
&12r_5 t_1+12\lambda\xi+6t_1\xi+\tfrac{1}{2}\sqrt{(96(12\lambda-v)(r_1+r_4+r_5)(2\lambda+t_1)\xi+} \\
&\quad\overline{4(v(r_1+r_4+r_5)+12\lambda(r_1+r_4+r_5+\xi)+6t_1(2r_1+2r_4+2r_5+\xi))^2)})>0
\end{aligned}
$$

Spin:	1
Parity:	Odd

Unitarity conditions

(Timeout after 10 seconds)