PSALTer results panel

Wave operator and propagator

	$1^{+}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$1^{+}\mathcal{A}^{\perp}{}_{\alpha\beta}$	$1^{+}f^{\parallel}{}_{\alpha\beta}$	$1^{-}\mathcal{B}_{\alpha}$	$1^{-}\mathcal{A}^{\parallel}{}_{\alpha}$	$1^{-}\mathcal{A}^{\perp}{}_{\alpha}$	$1^{-}f^{\parallel}{}_{\alpha}$	$1^{-}f^{\perp}{}_{\alpha}$
$1^{+}\mathcal{A}^{\parallel}\dagger^{\alpha\beta}$	$\frac{1}{6}(-6\lambda+6k^2(2r_3+r_5)+t_1+4t_2)$	$-\frac{6\lambda+t_1-2t_2}{3\sqrt{2}}$	$-\frac{i\,k(6\lambda+t_1-2t_2)}{3\sqrt{2}}$	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	0	0	0 0		0
$1^{-}\mathcal{A}^{\parallel}\dagger^{\alpha}$	0	0	0	0	$\frac{1}{18}(-6\lambda+v-6k^2(c_1-3(r_1+r_4+r_5))+3t_1)$	$\frac{3k^2c_1+24\lambda-v+6t_1}{18\sqrt{2}}$	0	$\frac{1}{18}i\,k(3k^2c_1+24\lambda-v+6t_1)$
$1^{-}\mathcal{A}^{\perp}\dagger^{\alpha}$	0	0	0	0	$\frac{3k^2c_1+24\lambda-v+6t_1}{18\sqrt{2}}$	$\frac{1}{36}(12\lambda+v+12t_1)$	0	$\frac{i\,k(12\lambda+v+12t_1)}{18\sqrt{2}}$
$1^{-}f^{\parallel}\dagger^{\alpha}$	0	0	0	0	0	0 0		0
$1^{-}f^{\perp}\dagger^{\alpha}$	0	0	0	0	$-\frac{1}{18}i\,k(3k^2c_1+24\lambda-v+6t_1)$	$-\frac{i\,k(12\lambda+v+12t_1)}{18\sqrt{2}}$	0	$\frac{1}{18}k^2(12\lambda+v+12t_1)$

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

	$0^{+}\mathcal{T}$	$0^{+}\rho$	$0^{+}\sigma^{\parallel}$	$0^{+}\tau^{\parallel}$	$0^{+}\tau^{\perp}$	$0^{-}\sigma^{\parallel}$
$0^{+}\mathcal{T}\dagger$	0	0	0	0 0		0
$0^{+}\rho\dagger$	0	0	0	0 0		0
$0^{+}\sigma^{\parallel}\dagger$	0	0	$\frac{v}{-12\lambda^2+\lambda v+2k^2v(r_1-r_3+2r_4)}$	$\frac{i}{\sqrt{2}\,k\left(\lambda+\frac{2k^2v(r_1-r_3+2r_4)}{-12\lambda+v}\right)}$	0	0
$0^{+}\tau^{\parallel}\dagger$	0	0	$-\frac{i}{\sqrt{2}\,k\left(\lambda+\frac{2k^2v(r_1-r_3+2r_4)}{-12\lambda+v}\right)}$	$\frac{-12\lambda+v+24k^2(r_1-r_3+2r_4)}{2k^2(-12\lambda^2+\lambda v+2k^2v(r_1-r_3+2r_4))}$	0	0
$0^{+}\tau^{\perp}\dagger$	0	0	0	0 0		0
$0^{-}\sigma^{\parallel}\dagger$	0	0	0	0	0	$\frac{1}{-2\lambda+k^2r_2+t_2}$

$S ==$

$\iiiint\Big(-\frac{1}{18}(18\phi\rho+18\sigma^{\alpha\beta\chi}\mathcal{A}_{\alpha\beta\chi}+36\lambda\mathcal{A}_{\alpha\chi\beta}\mathcal{A}^{\alpha\beta\chi}+6t_1\mathcal{A}_{\alpha\chi\beta}\mathcal{A}^{\alpha\beta\chi}-12t_2\mathcal{A}_{\alpha\chi\beta}\mathcal{A}^{\alpha\beta\chi}+24\lambda\mathcal{A}^{\alpha\beta}{}_{\alpha}\mathcal{A}_{\beta}{}^{\chi}{}_{\chi}-v\mathcal{A}^{\alpha\beta}{}_{\alpha}$

$\mathcal{A}_{\beta}{}^{\chi}{}_{\chi}+6t_1\mathcal{A}^{\alpha\beta}{}_{\alpha}\mathcal{A}_{\beta}{}^{\chi}{}_{\chi}+18\tau^{\alpha\beta}f_{\alpha\beta}+18\mathcal{T}^{\alpha}\mathcal{B}_{\alpha}+36\lambda f^{\alpha\beta}\partial_{\beta}\mathcal{A}_{\alpha}{}^{\chi}{}_{\chi}-36\lambda\partial_{\beta}\mathcal{A}^{\alpha\beta}{}_{\alpha}-$

$12\lambda\mathcal{A}_{\alpha}{}^{\chi}{}_{\chi}\partial_{\beta}f^{\alpha\beta}+2v\mathcal{A}_{\alpha}{}^{\chi}{}_{\chi}\partial_{\beta}f^{\alpha\beta}-12t_1\mathcal{A}_{\alpha}{}^{\chi}{}_{\chi}\partial_{\beta}f^{\alpha\beta}+12\lambda\mathcal{A}_{\beta}{}^{\chi}{}_{\chi}\partial^{\beta}f^{\alpha}{}_{\alpha}-$

$2v\mathcal{A}_{\beta}{}^{\chi}{}_{\chi}\partial^{\beta}f^{\alpha}{}_{\alpha}+12t_1\mathcal{A}_{\beta}{}^{\chi}{}_{\chi}\partial^{\beta}f^{\alpha}{}_{\alpha}-6\lambda\partial_{\beta}f^{\chi}{}_{\chi}\partial^{\beta}f^{\alpha}{}_{\alpha}+v\partial_{\beta}f^{\chi}{}_{\chi}\partial^{\beta}f^{\alpha}{}_{\alpha}-6t_1\partial_{\beta}f^{\chi}{}_{\chi}\partial^{\beta}f^{\alpha}{}_{\alpha}-$

$36\lambda f^{\alpha\beta}\partial_{\chi}\mathcal{A}_{\alpha}{}^{\chi}{}_{\beta}-6c_1\partial_{\beta}\partial^{\chi}f^{\alpha\beta}\partial_{\chi}\mathcal{A}_{\alpha}{}^{\delta}{}_{\delta}+36\lambda f^{\alpha}{}_{\alpha}\partial_{\chi}\mathcal{A}^{\beta\chi}{}_{\beta}-6\lambda\partial_{\beta}f^{\alpha\beta}\partial_{\chi}f_{\alpha}{}^{\chi}+$

$v\partial_{\beta}f^{\alpha\beta}\partial_{\chi}f_{\alpha}{}^{\chi}-6t_1\partial_{\beta}f^{\alpha\beta}\partial_{\chi}f_{\alpha}{}^{\chi}+12\lambda\partial^{\beta}f^{\alpha}{}_{\alpha}\partial_{\chi}f_{\beta}{}^{\chi}-2v\partial^{\beta}f^{\alpha}{}_{\alpha}\partial_{\chi}f_{\beta}{}^{\chi}+12t_1\partial^{\beta}f^{\alpha}{}_{\alpha}\partial_{\chi}f_{\beta}{}^{\chi}-$

$6c_1\partial_{\beta}\mathcal{A}_{\chi}{}^{\delta}{}_{\delta}\partial^{\chi}\mathcal{A}^{\alpha\beta}{}_{\alpha}-18r_4\partial_{\beta}\mathcal{A}_{\chi}{}^{\delta}{}_{\delta}\partial^{\chi}\mathcal{A}^{\alpha\beta}{}_{\alpha}+18r_5\partial_{\beta}\mathcal{A}_{\chi}{}^{\delta}{}_{\delta}\partial^{\chi}\mathcal{A}^{\alpha\beta}{}_{\alpha}+6c_1\partial_{\chi}\mathcal{A}_{\beta}{}^{\delta}{}_{\delta}\partial^{\chi}\mathcal{A}^{\alpha\beta}{}_{\alpha}-$

$18r_4\partial_{\chi}\mathcal{A}_{\beta}{}^{\delta}{}_{\delta}\partial^{\chi}\mathcal{A}^{\alpha\beta}{}_{\alpha}-18r_5\partial_{\chi}\mathcal{A}_{\beta}{}^{\delta}{}_{\delta}\partial^{\chi}\mathcal{A}^{\alpha\beta}{}_{\alpha}+36\lambda\mathcal{A}_{\alpha\chi\beta}\partial^{\chi}f^{\alpha\beta}+24t_1\mathcal{A}_{\alpha\chi\beta}\partial^{\chi}f^{\alpha\beta}-$

$12t_2\mathcal{A}_{\alpha\chi\beta}\partial^{\chi}f^{\alpha\beta}+12t_1\mathcal{A}_{\beta\chi\alpha}\partial^{\chi}f^{\alpha\beta}+12t_2\mathcal{A}_{\beta\chi\alpha}\partial^{\chi}f^{\alpha\beta}-18\lambda\partial_{\alpha}f_{\beta\chi}\partial^{\chi}f^{\alpha\beta}-12t_1\partial_{\alpha}f_{\beta\chi}\partial^{\chi}f^{\alpha\beta}+$

$6t_2\partial_{\alpha}f_{\beta\chi}\partial^{\chi}f^{\alpha\beta}-9\lambda\partial_{\alpha}f_{\chi\beta}\partial^{\chi}f^{\alpha\beta}-12t_1\partial_{\alpha}f_{\chi\beta}\partial^{\chi}f^{\alpha\beta}-3t_2\partial_{\alpha}f_{\chi\beta}\partial^{\chi}f^{\alpha\beta}+9\lambda\partial_{\beta}f_{\alpha\chi}\partial^{\chi}f^{\alpha\beta}+$

$6t_1\partial_{\beta}f_{\alpha\chi}\partial^{\chi}f^{\alpha\beta}-3t_2\partial_{\beta}f_{\alpha\chi}\partial^{\chi}f^{\alpha\beta}+9\lambda\partial_{\chi}f_{\alpha\beta}\partial^{\chi}f^{\alpha\beta}+12t_1\partial_{\chi}f_{\alpha\beta}\partial^{\chi}f^{\alpha\beta}+3t_2\partial_{\chi}f_{\alpha\beta}\partial^{\chi}f^{\alpha\beta}+$

$9\lambda\partial_{\chi}f_{\beta\alpha}\partial^{\chi}f^{\alpha\beta}+6t_1\partial_{\chi}f_{\beta\alpha}\partial^{\chi}f^{\alpha\beta}-3t_2\partial_{\chi}f_{\beta\alpha}\partial^{\chi}f^{\alpha\beta}+6(t_1+t_2)\mathcal{A}_{\alpha\beta\chi}(\mathcal{A}^{\alpha\beta\chi}+2\partial^{\chi}f^{\alpha\beta})+$

$6c_1\partial_{\alpha}\mathcal{A}_{\chi}{}^{\delta}{}_{\delta}\partial^{\chi}\partial_{\beta}f^{\alpha\beta}+6c_1\partial_{\beta}\partial^{\chi}f^{\alpha\beta}\partial_{\delta}\mathcal{A}_{\alpha\chi}{}^{\delta}-18r_4\partial_{\alpha}\mathcal{A}^{\alpha\beta\chi}\partial_{\delta}\mathcal{A}_{\beta\chi}{}^{\delta}-18r_5\partial_{\alpha}\mathcal{A}^{\alpha\beta\chi}\partial_{\delta}\mathcal{A}_{\beta\chi}{}^{\delta}-$

$6c_1\partial^{\chi}\mathcal{A}^{\alpha\beta}{}_{\alpha}\partial_{\delta}\mathcal{A}_{\beta\chi}{}^{\delta}+36r_4\partial^{\chi}\mathcal{A}^{\alpha\beta}{}_{\alpha}\partial_{\delta}\mathcal{A}_{\beta\chi}{}^{\delta}+36r_5\partial^{\chi}\mathcal{A}^{\alpha\beta}{}_{\alpha}\partial_{\delta}\mathcal{A}_{\beta\chi}{}^{\delta}-6c_1\partial^{\chi}\partial_{\beta}f^{\alpha\beta}\partial_{\delta}\mathcal{A}_{\chi\alpha}{}^{\delta}-$

$18r_4\partial_{\alpha}\mathcal{A}^{\alpha\beta\chi}\partial_{\delta}\mathcal{A}_{\chi\beta}{}^{\delta}+18r_5\partial_{\alpha}\mathcal{A}^{\alpha\beta\chi}\partial_{\delta}\mathcal{A}_{\chi\beta}{}^{\delta}+6c_1\partial^{\chi}\mathcal{A}^{\alpha\beta}{}_{\alpha}\partial_{\delta}\mathcal{A}_{\chi\beta}{}^{\delta}+36r_4\partial^{\chi}\mathcal{A}^{\alpha\beta}{}_{\alpha}\partial_{\delta}\mathcal{A}_{\chi\beta}{}^{\delta}-$

$36r_5\partial^{\chi}\mathcal{A}^{\alpha\beta}{}_{\alpha}\partial_{\delta}\mathcal{A}_{\chi\beta}{}^{\delta}-24r_1\partial_{\beta}\mathcal{A}_{\alpha\chi\delta}\partial^{\delta}\mathcal{A}^{\alpha\beta\chi}+24r_2\partial_{\beta}\mathcal{A}_{\alpha\chi\delta}\partial^{\delta}\mathcal{A}^{\alpha\beta\chi}+12r_1\partial_{\beta}\mathcal{A}_{\alpha\delta\chi}\partial^{\delta}\mathcal{A}^{\alpha\beta\chi}-$

$12r_2\partial_{\beta}\mathcal{A}_{\alpha\delta\chi}\partial^{\delta}\mathcal{A}^{\alpha\beta\chi}+24r_1\partial_{\beta}\mathcal{A}_{\chi\delta\alpha}\partial^{\delta}\mathcal{A}^{\alpha\beta\chi}+12r_2\partial_{\beta}\mathcal{A}_{\chi\delta\alpha}\partial^{\delta}\mathcal{A}^{\alpha\beta\chi}-$

$72r_3\partial_{\beta}\mathcal{A}_{\chi\delta\alpha}\partial^{\delta}\mathcal{A}^{\alpha\beta\chi}-12r_1\partial_{\chi}\mathcal{A}_{\alpha\beta\delta}\partial^{\delta}\mathcal{A}^{\alpha\beta\chi}-6r_2\partial_{\chi}\mathcal{A}_{\alpha\beta\delta}\partial^{\delta}\mathcal{A}^{\alpha\beta\chi}+12r_1\partial_{\delta}\mathcal{A}_{\alpha\beta\chi}\partial^{\delta}\mathcal{A}^{\alpha\beta\chi}+$

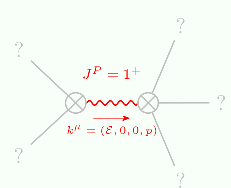
$6r_2\partial_{\delta}\mathcal{A}_{\alpha\beta\chi}\partial^{\delta}\mathcal{A}^{\alpha\beta\chi}+12r_1\partial_{\delta}\mathcal{A}_{\alpha\chi\beta}\partial^{\delta}\mathcal{A}^{\alpha\beta\chi}-12r_2\partial_{\delta}\mathcal{A}_{\alpha\chi\beta}\partial^{\delta}\mathcal{A}^{\alpha\beta\chi}))[t,x,y,z]\,dz\,dy\,dx\,dt$

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

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

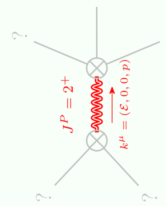
	$0^{+}\mathcal{B}$	$0^{+}\phi$	$0^{+}\mathcal{A}^{\parallel}$	$0^{+}f^{\parallel}$	$0^{+}f^{\perp}$	$0^{-}\mathcal{A}^{\parallel}$
$0^{+}\mathcal{B}\dagger$	0	0	0	0	0	0
$0^{+}\phi\dagger$	0	0	0	0	0	0
$0^{+}\mathcal{A}^{\parallel}\dagger$	0	0	$-\lambda+\frac{v}{12}+2k^2(r_1-r_3+2r_4)$	$\frac{i\,k(12\lambda-v)}{6\sqrt{2}}$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

Massive and massless spectra



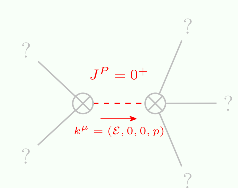
Massive particle

Pole residue:	$\frac{3(r_5t_1^2-t_1^2t_2+2r_5t_2^2-t_1t_2^2+4\lambda^2(6r_3+3r_5+t_1+t_2)+2\lambda(2r_5t_1+t_1^2+4r_3(t_1-2t_2)-4r_5t_2-t_2^2)+2r_3(t_1^2+2t_2^2))}{(2r_3+r_5)(t_1+t_2)(12\lambda^2+2r_5t_1+6\lambda(t_1-t_2)+2r_5t_2-3t_1t_2+4r_3(t_1+t_2))}>0$
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



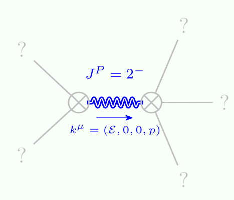
Massive particle

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



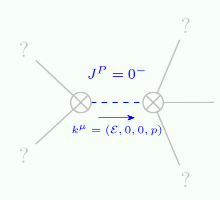
Massive particle

Pole residue:	$\frac{v(-r_1+r_3-2r_4)+\lambda(v+12(r_1-r_3+2r_4))}{2\lambda v(r_1-r_3+2r_4)}>0$
Square mass:	$\frac{12\lambda^2-\lambda v}{2vr_1-2vr_3+4vr_4}>0$
Spin:	0
Parity:	Even



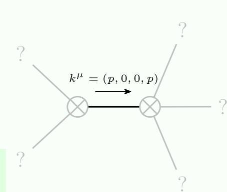
Massive particle

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



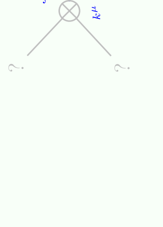
Massive particle

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



Massless particle

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



Massive particle

Pole residue:

$(144c_1^2\lambda-288c_1\lambda^2+3c_1^2v-24c_1\lambda v-576c_1\lambda r_1+288\lambda^2r_1-12c_1vr_1+48\lambda vr_1+$
$2v^2r_1+432\lambda r_1^2+36vr_1^2-576c_1\lambda r_4+288\lambda^2r_4-12c_1vr_4+48\lambda vr_4+$
$2v^2r_4+864\lambda r_1r_4+72vr_1r_4+432\lambda r_4^2+36vr_4^2-576c_1\lambda r_5+288\lambda^2r_5-$
$12c_1vr_5+48\lambda vr_5+2v^2r_5+864\lambda r_1r_5+72vr_1r_5+864\lambda r_4r_5+$
$72vr_4r_5+432\lambda r_5^2+36vr_5^2+90c_1^2t_1-432c_1\lambda t_1-12c_1vt_1-360c_1r_1t_1+$
$576\lambda r_1t_1+48vr_1t_1+432r_1^2t_1-360c_1r_4t_1+576\lambda r_4t_1+48vr_4t_1+$
$864r_1r_4t_1+432r_4^2t_1-360c_1r_5t_1+576\lambda r_5t_1+48vr_5t_1+864r_1r_5t_1+$
$864r_4r_5t_1+432r_5^2t_1-144c_1t_1^2+288r_1t_1^2+288r_4t_1^2+288r_5t_1^2+6c_1$
$\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}-$
$12\lambda\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}-$
$v\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}-$
$18r_1\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}-$
$18r_4\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}-$
$18r_5\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}-$
$12t_1\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2})/$
$(144c_1^2\lambda^2+12c_1^2\lambda v-576c_1\lambda^2r_1-48c_1\lambda vr_1+288\lambda^2r_1^2+48\lambda vr_1^2+$
$2v^2r_1^2-576c_1\lambda^2r_4-48c_1\lambda vr_4+576\lambda^2r_1r_4+96\lambda vr_1r_4+$
$4v^2r_1r_4+288\lambda^2r_4^2+48\lambda vr_4^2+2v^2r_4^2-576c_1\lambda^2r_5-$
$48c_1\lambda vr_5+576\lambda^2r_1r_5+96\lambda vr_1r_5+4v^2r_1r_5+576\lambda^2r_4r_5+$
$96\lambda vr_4r_5+4v^2r_4r_5+288\lambda^2r_5^2+48\lambda vr_5^2+2v^2r_5^2+$
$216c_1^2\lambda t_1+6c_1^2vt_1-864c_1\lambda r_1t_1-24c_1vr_1t_1+576\lambda r_1^2t_1+$
$48vr_1^2t_1-864c_1\lambda r_4t_1-24c_1vr_4t_1+1152\lambda r_1r_4t_1+96vr_1r_4t_1+$
$576\lambda r_4^2t_1+48vr_4^2t_1-864c_1\lambda r_5t_1-24c_1vr_5t_1+1152\lambda r_1r_5t_1+$
$96vr_1r_5t_1+1152\lambda r_4r_5t_1+576\lambda r_5^2t_1+48vr_5^2t_1+$
$72c_1^2t_1^2-288c_1r_1t_1^2+288r_1^2t_1^2-288c_1r_4t_1^2+576r_1r_4t_1^2+$
$288r_4^2t_1^2-288c_1r_5t_1^2+576r_4r_5t_1^2+288r_5^2t_1^2-\frac{1}{2}c_1^2$
$\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}+$
$12c_1\lambda\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}-$
$12\lambda r_1\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}-$
$vr_1\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}-$
$12\lambda r_4\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}-$
$vr_4\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}-$
$12\lambda r_5\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}-$
$vr_5\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}+$
$6c_1t_1\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}-$
$12r_1t_1\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}-$
$12r_4t_1\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}-$
$12r_5t_1\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2})>0$

Square mass:	$-\frac{12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1)+\sqrt{-12c_1^2(12\lambda-v)(2\lambda+t_1)+(12c_1(2\lambda+t_1)-2(r_1+r_4+r_5)(12\lambda+v+12t_1))^2}}{2c_1^2}>0$
Spin:	1
Parity:	Odd

Unitarity conditions

(Timeout after 10 seconds)