PSALTer results panel

$$S == \iiiint (\frac{1}{6}(2t_1\,\mathcal{A}^{\alpha\iota}{}_\alpha\,\mathcal{A}_{\iota}{}^\theta{}_\theta + 6\,\mathcal{A}^{\alpha\beta\chi}\,\sigma_{\alpha\beta\chi} + 6\,f^{\alpha\beta}\,\tau\,(\Delta+\mathcal{K})_{\alpha\beta} - 4t_1\,\mathcal{A}_\alpha{}^\theta{}_\theta\,\partial_\iota f^{\alpha\iota} + 4t_1\,\mathcal{A}_\iota{}^\theta{}_\theta\,\partial^\iota f^\alpha{}_\alpha - 2t_1\,\partial_\iota f^\theta{}_\theta\,\partial^\iota f^\alpha{}_\alpha - 2t_1\,\partial_\iota f^{\alpha\iota}\,\partial_\theta f_\alpha{}^\theta +$$
$$4t_1\,\partial^\iota f^\alpha{}_\alpha\,\partial_\theta f_\iota{}^\theta - 8r_1\,\partial_\beta\mathcal{A}_{\alpha\iota\theta}\,\partial^\theta\mathcal{A}^{\alpha\beta\iota} + 4r_1\,\partial_\beta\mathcal{A}_{\alpha\beta\iota}\,\partial^\theta\mathcal{A}^{\alpha\beta\iota} - 16r_1\,\partial_\beta\mathcal{A}_{\iota\theta\alpha}\,\partial^\theta\mathcal{A}^{\alpha\beta\iota} - 4r_1\,\partial_\iota\mathcal{A}_{\alpha\beta\theta}\,\partial^\theta\mathcal{A}^{\alpha\beta\iota} + 4r_1\,\partial_\theta\mathcal{A}_{\alpha\iota\beta}\,\partial^\theta\mathcal{A}^{\alpha\beta\iota} + 4r_1\,\partial_\theta\mathcal{A}_{\alpha\beta\iota}\,\partial^\theta\mathcal{A}^{\alpha\beta\iota} + 6r_5\,\partial_\iota\mathcal{A}_\theta{}^\kappa{}_\kappa\,\partial^\theta\mathcal{A}^{\alpha\iota}{}_\alpha - 6r_5\,\partial_\theta\mathcal{A}_\iota{}^\kappa{}_\kappa\,\partial^\theta\mathcal{A}^{\alpha\iota}{}_\alpha - 6t_1\,\partial_\iota f_{\iota\theta}\,\partial^\theta f^{\alpha\iota} -$$
$$3t_1\,\partial_\alpha f_{\theta\iota}\,\partial^\theta f^{\alpha\iota} + 3t_1\,\partial_\iota f_{\alpha\theta}\,\partial^\theta f^{\alpha\iota} + 3t_1\,\partial_\theta f_{\alpha\iota}\,\partial^\theta f^{\alpha\iota} + 3t_1\,\partial_\theta f_{\iota\alpha}\,\partial^\theta f^{\alpha\iota} + 6t_1\,\mathcal{A}_{\alpha\theta\iota}\,(\mathcal{A}^{\alpha\iota\theta} + 2\,\partial^\theta f^{\alpha\iota}) - 6r_5\,\partial_\alpha\mathcal{A}^{\alpha\iota\theta}\partial_\kappa\mathcal{A}_{\iota}{}^\kappa{}_\theta + 12r_5\,\partial^\theta\mathcal{A}^{\alpha\iota}{}_\alpha\,\partial_\kappa\mathcal{A}_\iota{}^\kappa{}_\theta + 6r_5\,\partial_\alpha\mathcal{A}^{\alpha\iota\theta}\partial_\kappa\mathcal{A}_{\theta}{}^\kappa{}_\iota - 12r_5\,\partial^\theta\mathcal{A}^{\alpha\iota}{}_\alpha\,\partial_\kappa\mathcal{A}_\theta{}^\kappa{}_\iota))[t,x,y,z]\,dz\,dy\,dx\,dt$$

Wave operator

	$0^+\mathcal{A}^\parallel$	$0^+f^\parallel$	$0^+f^\perp$	$0^-\mathcal{A}^\parallel$
$0^+\mathcal{A}^\parallel\dagger$	0	0	0	0
$0^+f^\parallel\dagger$	0	0	0	0
$0^+f^\perp\dagger$	0	0	0	0
$0^-\mathcal{A}^\parallel\dagger$	0	0	0	$-t_1$

	$1^+\mathcal{A}^\parallel{}_{\alpha\beta}$	$1^+\mathcal{A}^\perp{}_{\alpha\beta}$	$1^+f^\parallel{}_{\alpha\beta}$	$1^-\mathcal{A}^\parallel{}_\alpha$	$1^-\mathcal{A}^\perp{}_\alpha$	$1^-f^\parallel{}_\alpha$	$1^-f^\perp{}_\alpha$
$1^+\mathcal{A}^\parallel\dagger^{\alpha\beta}$	$k^2(2r_1+r_5)-\frac{t_1}{2}$	$-\frac{t_1}{\sqrt2}$	$-\frac{ikt_1}{\sqrt2}$	0	0	0	0
$1^+\mathcal{A}^\perp\dagger^{\alpha\beta}$	$-\frac{t_1}{\sqrt2}$	0	0	0	0	0	0
$1^+f^\parallel\dagger^{\alpha\beta}$	$\frac{ikt_1}{\sqrt2}$	0	0	0	0	0	0
$1^-\mathcal{A}^\parallel\dagger^\alpha$	0	0	0	$k^2(r_1+r_5)+\frac{t_1}{6}$	$\frac{t_1}{3\sqrt2}$	0	$\frac{ikt_1}{3}$
$1^-\mathcal{A}^\perp\dagger^\alpha$	0	0	0	$\frac{t_1}{3\sqrt2}$	$\frac{t_1}{3}$	0	$\frac{1}{3}i\sqrt2\,kt_1$
$1^-f^\parallel\dagger^\alpha$	0	0	0	0	0	0	0
$1^-f^\perp\dagger^\alpha$	0	0	0	$-\frac{1}{3}ikt_1$	$-\frac{1}{3}i\sqrt2\,kt_1$	0	$\frac{2k^2t_1}{3}$

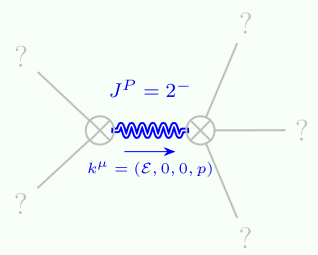|	$2^+\mathcal{A}^\parallel{}_{\alpha\beta}$	$2^+f^\parallel{}_{\alpha\beta}$	$2^-\mathcal{A}^\parallel{}_{\alpha\beta\chi}$
$2^+\mathcal{A}^\parallel\dagger^{\alpha\beta}$	$\frac{t_1}{2}$	$-\frac{ikt_1}{\sqrt2}$	0
$2^+f^\parallel\dagger^{\alpha\beta}$	$\frac{ikt_1}{\sqrt2}$	k^2t_1	0
$2^-\mathcal{A}^\parallel\dagger^{\alpha\beta\chi}$	0	0	$k^2r_1+\frac{t_1}{2}$

Saturated propagator

	$0^+\sigma^\parallel$	$0^+\tau^\parallel$	$0^+\tau^\perp$	$0^-\sigma^\parallel$
$0^+\sigma^\parallel\dagger$	0	0	0	0
$0^+\tau^\parallel\dagger$	0	0	0	0
$0^+\tau^\perp\dagger$	0	0	0	0
$0^-\sigma^\parallel\dagger$	0	0	0	$-\frac{1}{t_1}$

	$1^+\sigma^\parallel{}_{\alpha\beta}$	$1^+\sigma^\perp{}_{\alpha\beta}$	$1^+\tau^\parallel{}_{\alpha\beta}$	$1^-\sigma^\parallel{}_\alpha$	$1^-\sigma^\perp{}_\alpha$	$1^-\tau^\parallel{}_\alpha$	$1^-\tau^\perp{}_\alpha$
$1^+\sigma^\parallel\dagger^{\alpha\beta}$	0	$-\frac{\sqrt2}{t_1+k^2t_1}$	$\frac{i\sqrt2\,k}{t_1+k^2t_1}$	0	0	0	0
$1^+\sigma^\perp\dagger^{\alpha\beta}$	$\frac{\sqrt2}{t_1+k^2t_1}$	$\frac{-2k^2(2r_1+r_5)+t_1}{(1+k^2)^2t_1^2}$	$\frac{-2ik^3(2r_1+r_5)+ikt_1}{(1+k^2)^2t_1^2}$	0	0	0	0
$1^+\tau^\parallel\dagger^{\alpha\beta}$	$\frac{i\sqrt2\,k}{t_1+k^2t_1}$	$\frac{i(2k^3(2r_1+r_5)-kt_1)}{(1+k^2)^2t_1^2}$	$\frac{-2k^4(2r_1+r_5)+k^2t_1}{(1+k^2)^2t_1^2}$	0	0	0	0
$1^-\sigma^\parallel\dagger^\alpha$	0	0	0	$\frac{1}{k^2(r_1+r_5)}$	$-\frac{1}{\sqrt2(k^2+2k^4)(r_1+r_5)}$	0	$\frac{i}{k(1+2k^2)(r_1+r_5)}$
$1^-\sigma^\perp\dagger^\alpha$	0	0	0	$-\frac{1}{\sqrt2(k^2+2k^4)(r_1+r_5)}$	$\frac{6k^2(r_1+r_5)+t_1}{2(k+2k^3)^2(r_1+r_5)t_1}$	0	$\frac{i(6k^2(r_1+r_5)+t_1)}{\sqrt2\,k(1+2k^2)^2(r_1+r_5)t_1}$
$1^-\tau^\parallel\dagger^\alpha$	0	0	0	0	0	0	0
$1^-\tau^\perp\dagger^\alpha$	0	0	0	$\frac{i}{k(1+2k^2)(r_1+r_5)}$	$-\frac{i(6k^2(r_1+r_5)+t_1)}{\sqrt2\,k(1+2k^2)^2(r_1+r_5)t_1}$	0	$\frac{6k^2(r_1+r_5)+t_1}{(1+2k^2)^2(r_1+r_5)t_1}$

	$2^+\sigma^\parallel{}_{\alpha\beta}$	$2^+\tau^\parallel{}_{\alpha\beta}$	$2^-\sigma^\parallel{}_{\alpha\beta\chi}$
$2^+\sigma^\parallel\dagger^{\alpha\beta}$	$\frac{2}{(1+2k^2)^2t_1}$	$-\frac{2i\sqrt2\,k}{(1+2k^2)^2t_1}$	0
$2^+\tau^\parallel\dagger^{\alpha\beta}$	$\frac{2i\sqrt2\,k}{(1+2k^2)^2t_1}$	$\frac{4k^2}{(1+2k^2)^2t_1}$	0
$2^-\sigma^\parallel\dagger^{\alpha\beta\chi}$	0	0	$\frac{2}{2k^2r_1+t_1}$

Source constraints

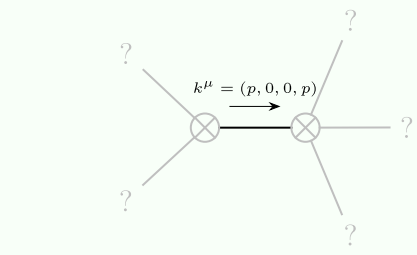| Spin-parity form	Covariant form	Multiplicities
$0^+\sigma^\parallel == 0$	$\partial_\beta\sigma^\alpha{}_\alpha{}^\beta == 0$	1
$0^+\tau^\parallel == 0$	$\partial_\beta\partial_\alpha\tau(\Delta+\mathcal{K})^{\alpha\beta} == \partial_\beta\partial^\beta\tau(\Delta+\mathcal{K})^\alpha{}_\alpha$	1
$0^+\tau^\perp == 0$	$\partial_\beta\partial_\alpha\tau(\Delta+\mathcal{K})^{\alpha\beta} == 0$	1
$2ik\,1^-\sigma^{\perp\alpha} + 1^-\tau^{\perp\alpha} == 0$	$\partial_\chi\partial_\beta\partial^\alpha\tau(\Delta+\mathcal{K})^{\beta\chi} == \partial_\chi\partial^\chi\partial_\beta\tau(\Delta+\mathcal{K})^{\alpha\beta} + 2\,\partial_\delta\partial^\delta\partial_\chi\partial_\beta\sigma^{\beta\alpha\chi}$	3
$1^-\tau^{\parallel\alpha} == 0$	$\partial_\chi\partial_\beta\partial^\alpha\tau(\Delta+\mathcal{K})^{\beta\chi} == \partial_\chi\partial^\chi\partial_\beta\tau(\Delta+\mathcal{K})^{\beta\alpha}$	3
$ik\,1^+\sigma^{\perp\alpha\beta} + 1^+\tau^{\parallel\alpha\beta} == 0$	$\partial_\chi\partial^\alpha\tau(\Delta+\mathcal{K})^{\beta\chi} + \partial_\chi\partial^\beta\tau(\Delta+\mathcal{K})^{\chi\alpha} + \partial_\chi\partial^\chi\tau(\Delta+\mathcal{K})^{\alpha\beta} + 2\,\partial_\delta\partial_\chi\partial^\alpha\sigma^{\chi\beta\delta} + 2\,\partial_\delta\partial^\delta\partial_\chi\sigma^{\chi\alpha\beta} == \partial_\chi\partial^\alpha\tau(\Delta+\mathcal{K})^{\chi\beta} + \partial_\chi\partial^\beta\tau(\Delta+\mathcal{K})^{\alpha\chi} + \partial_\chi\partial^\chi\tau(\Delta+\mathcal{K})^{\beta\alpha} + 2\,\partial_\delta\partial_\chi\partial^\beta\sigma^{\chi\alpha\delta}$	3
$-2ik\,2^+\sigma^{\parallel\alpha\beta} + 2^+\tau^{\parallel\alpha\beta} == 0$	$-i(4\,\partial_\delta\partial_\chi\partial^\beta\partial^\alpha\tau(\Delta+\mathcal{K})^{\chi\delta} + 2\,\partial_\delta\partial^\delta\partial^\beta\partial^\alpha\tau(\Delta+\mathcal{K})^\chi{}_\chi - 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\alpha\tau(\Delta+\mathcal{K})^{\beta\chi} - 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\alpha\tau(\Delta+\mathcal{K})^{\chi\beta} - 3\,\partial_\delta\partial^\delta\partial^\beta\tau(\Delta+\mathcal{K})^\alpha{}_\chi - 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\beta\tau(\Delta+\mathcal{K})^{\chi\alpha} + 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\chi\tau(\Delta+\mathcal{K})^{\alpha\beta} + 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\chi\tau(\Delta+\mathcal{K})^{\beta\alpha} +$ $4i\,k^\chi\,\partial_\delta\partial_\chi\partial^\beta\partial^\alpha\sigma^\delta{}_\delta{}^\epsilon - 6i\,k^\chi\,\partial_\epsilon\partial_\delta\partial_\chi\partial^\alpha\sigma^{\delta\beta\epsilon} - 6i\,k^\chi\,\partial_\epsilon\partial_\delta\partial_\chi\partial^\beta\sigma^{\delta\alpha\epsilon} + 6i\,k^\chi\,\partial_\epsilon\partial^\delta\partial_\delta\partial_\chi\sigma^{\alpha\beta\delta} + 6i\,k^\chi\,\partial_\epsilon\partial^\delta\partial_\delta\partial_\chi\sigma^{\beta\alpha\delta} + 2\,\eta^{\alpha\beta}\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial_\chi\tau(\Delta+\mathcal{K})^{\chi\delta} - 2\,\eta^{\alpha\beta}\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\delta\tau(\Delta+\mathcal{K})^\chi{}_\chi - 4i\,\eta^{\alpha\beta}\,k^\chi\,\partial_\delta\partial^\delta\partial_\epsilon\partial_\chi\sigma^\delta{}_\delta{}^\epsilon) == 0$	5
Total expected gauge generators:		17

Massive spectrum

Massive particle

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

Massless spectrum

Massless particle

Pole residue:	$-\frac{7}{r_1+r_5} + \frac{-2t_1p^2-4(r_1+r_5)p^4}{t_1^2} > 0$
Polarisations:	2

Unitarity conditions

$r_1 < 0\,\&\&\,r_5 < -r_1\,\&\&\,t_1 > 0$