PSALTer results panel

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

Wave operator

	$0^+_.\mathcal{A}^{\parallel}$	$0^+_.f^{\parallel}$	$0^+_.f^{\perp}$	$0^-_.\mathcal{A}^{\parallel}$
$0^+_.\mathcal{A}^{\parallel}\,\dagger$	$-t_1$	$i\sqrt{2}\,k\,t_1$	0	0
$0^+_.f^{\parallel}\,\dagger$	$-i\sqrt{2}\,k\,t_1$	$-2\,k^2\,t_1$	0	0
$0^+_.f^{\perp}\,\dagger$	0	0	0	0
$0^-_.\mathcal{A}^{\parallel}\,\dagger$	0	0	0	0

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

	$2^+_.\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$2^+_.f^{\parallel}{}_{\alpha\beta}$	$2^-_.\mathcal{A}^{\parallel}{}_{\alpha\beta\chi}$
$2^+_.\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{t_1}{2}$	$-\frac{i\,k\,t_1}{\sqrt{2}}$	0
$2^+_.f^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{i\,k\,t_1}{\sqrt{2}}$	$k^2\,t_1$	0
$2^-_.\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	$k^2\,r_1 + \frac{t_1}{2}$

Saturated propagator

	$0^+_.\sigma^{\parallel}$	$0^+_.\tau^{\parallel}$	$0^+_.\tau^{\perp}$	$0^-_.\sigma^{\parallel}$
$0^+_.\sigma^{\parallel}\,\dagger$	$-\frac{1}{(1+2\,k^2)^2\,t_1}$	$\frac{i\sqrt{2}\,k}{(1+2\,k^2)^2\,t_1}$	0	0
$0^+_.\tau^{\parallel}\,\dagger$	$-\frac{i\sqrt{2}\,k}{(1+2\,k^2)^2\,t_1}$	$-\frac{2\,k^2}{(1+2\,k^2)^2\,t_1}$	0	0
$0^+_.\tau^{\perp}\,\dagger$	0	0	0	0
$0^-_.\sigma^{\parallel}\,\dagger$	0	0	0	0

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

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

Source constraints

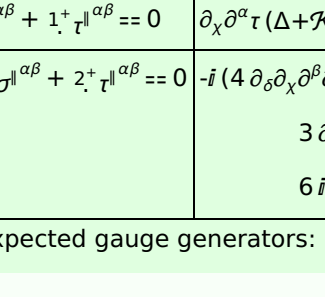
Spin-parity form	Covariant form	Multiplicities
$0^-_.\sigma^{\parallel} == 0$	$\epsilon\eta_{\alpha\beta\chi\delta}\,\partial^{\delta}\sigma^{\alpha\beta\chi} == 0$	1
$0^+_.\tau^{\perp} == 0$	$\partial_{\beta}\partial_{\alpha}\tau\,(\Delta+\mathcal{K})^{\alpha\beta} == 0$	1
$-2\,i\,k\,0^+_.\sigma^{\parallel}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

Massive spectrum

Massive particle

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

Massless spectrum



Massless particle

Pole residue:	$\frac{9}{2\,r_1+r_5} + \frac{2\,p^2\,(t_1+(2\,r_1+r_5)\,p^2)}{t_1^2} > 0$
Polarisations:	2

Unitarity conditions

$r_1 < 0\ \&\&\ r_5 > -2\,r_1\ \&\&\ t_1 > 0$