PSALTer results panel

$$S == \iiiint\Big(\mathcal{A}^{\alpha\beta\chi}\ \sigma_{\alpha\beta\chi} + f^{\alpha\beta}\ \tau_{(\Delta+\mathcal{K})\alpha\beta} - 2\,r_3\Big(\partial_\beta\mathcal{A}_{\prime}{}^{\theta}{}_{\theta}\,\partial'\mathcal{A}^{\alpha\beta}{}_{\alpha} + \partial_\prime\mathcal{A}_{\beta}{}^{\theta}{}_{\theta}\,\partial'\mathcal{A}^{\alpha\beta}{}_{\alpha} + \partial_\alpha\mathcal{A}^{\alpha\beta\prime}\,\partial_\theta\mathcal{A}_{\beta}{}^{\theta}{}_{\prime} - 2\,\partial'\mathcal{A}^{\alpha\beta}{}_{\alpha}\,\partial_\theta\mathcal{A}_{\beta}{}^{\theta}{}_{\prime} + \partial_\alpha\mathcal{A}^{\alpha\beta\prime}\,\partial_\theta\mathcal{A}_{\prime}{}^{\theta}{}_{\beta} - 2\,\partial'\mathcal{A}^{\alpha\beta}{}_{\alpha}\,\partial_\theta\mathcal{A}_{\prime}{}^{\theta}{}_{\beta} + 2\,\partial_\beta\mathcal{A}_{\prime\theta\alpha}\,\partial^\theta\mathcal{A}^{\alpha\beta\prime}\Big) + \frac{1}{6}\,t_1\Big(2\,\mathcal{A}^{\alpha\prime}{}_{\alpha}\,\mathcal{A}_{\prime}{}^{\theta}{}_{\theta} - 4\,\mathcal{A}_{\alpha}{}^{\theta}{}_{\theta}\,\partial_\prime f^{\alpha\prime} + 4\,\mathcal{A}_{\prime}{}^{\theta}{}_{\theta}\,\partial' f^{\alpha}{}_{\alpha} - 2\,\partial_\prime f^{\theta}{}_{\theta}\,\partial' f^{\alpha}{}_{\alpha} - 2\,\partial_\prime f^{\alpha\prime}\,\partial_\theta f_{\alpha}{}^{\theta} + 4\,\partial' f^{\alpha}{}_{\alpha}\,\partial_\theta f_{\prime}{}^{\theta} - 6\,\partial_\alpha f_{\prime\theta}\,\partial^\theta f^{\alpha\prime} - 3\,\partial_\alpha f_{\theta\prime}\,\partial^\theta f^{\alpha\prime} + 3\,\partial_\prime f_{\alpha\theta}\,\partial^\theta f^{\alpha\prime} + 3\,\partial_\theta f_{\alpha\prime}\,\partial^\theta f^{\alpha\prime} + 3\,\partial_\theta f_{\prime\alpha}\,\partial^\theta f^{\alpha\prime} + 6\,\mathcal{A}_{\alpha\theta\prime}\left(\mathcal{A}^{\alpha\prime\theta} + 2\,\partial^\theta f^{\alpha\prime}\right)\Big) + r_5\Big(\partial_\prime\mathcal{A}_{\theta}{}^{\kappa}{}_{\kappa}\,\partial^\theta\mathcal{A}^{\alpha\prime}{}_{\alpha} - \partial_\theta\mathcal{A}_{\prime}{}^{\kappa}{}_{\kappa}\,\partial^\theta\mathcal{A}^{\alpha\prime}{}_{\alpha} - \left(\partial_\alpha\mathcal{A}^{\alpha\prime\theta} - 2\,\partial^\theta\mathcal{A}^{\alpha\prime}{}_{\alpha}\right)\left(\partial_\kappa\mathcal{A}_{\prime}{}^{\kappa}{}_{\theta} - \partial_\kappa\mathcal{A}_{\theta}{}^{\kappa}{}_{\prime}\right)\Big)\Big)[t, x, y, z]\,dt\,dz\,dy\,dx\,dt$$

Wave operator

	$0^+_\cdot\mathcal{A}^\parallel$	$0^+_\cdot f^\parallel$	$0^+_\cdot f^\perp$	$0^-_\cdot\mathcal{A}^\parallel$
$0^+_\cdot\mathcal{A}^\parallel\,\dagger$	$6\,k^2\,r_3$	0	0	0
$0^+_\cdot f^\parallel\,\dagger$	0	0	0	0
$0^+_\cdot f^\perp\,\dagger$	0	0	0	0
$0^-_\cdot\mathcal{A}^\parallel\,\dagger$	0	0	0	$-t_1$

	$1^+_\cdot\mathcal{A}^\parallel{}_{\alpha\beta}$	$1^+_\cdot\mathcal{A}^\perp{}_{\alpha\beta}$	$1^+_\cdot f^\parallel{}_{\alpha\beta}$	$1^-_\cdot\mathcal{A}^\parallel{}_{\alpha}$	$1^-_\cdot\mathcal{A}^\perp{}_{\alpha}$	$1^-_\cdot f^\parallel{}_{\alpha}$	$1^-_\cdot f^\perp{}_{\alpha}$
$1^+_\cdot\mathcal{A}^\parallel\,\dagger^{\alpha\beta}$	$k^2\left(2\,r_3 + r_5\right) - \frac{t_1}{2}$	$-\frac{t_1}{\sqrt{2}}$	$-\frac{i\,k\,t_1}{\sqrt{2}}$	0	0	0	0
$1^+_\cdot\mathcal{A}^\perp\,\dagger^{\alpha\beta}$	$-\frac{t_1}{\sqrt{2}}$	0	0	0	0	0	0
$1^+_\cdot f^\parallel\,\dagger^{\alpha\beta}$	$\frac{i\,k\,t_1}{\sqrt{2}}$	0	0	0	0	0	0
$1^-_\cdot\mathcal{A}^\parallel\,\dagger^{\alpha}$	0	0	0	$k^2\left(2\,r_3 + r_5\right) + \frac{t_1}{6}$	$\frac{t_1}{3\sqrt{2}}$	0	$\frac{i\,k\,t_1}{3}$
$1^-_\cdot\mathcal{A}^\perp\,\dagger^{\alpha}$	0	0	0	$\frac{t_1}{3\sqrt{2}}$	$\frac{t_1}{3}$	0	$\frac{1}{3}\,i\,\sqrt{2}\,k\,t_1$
$1^-_\cdot f^\parallel\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_\cdot f^\perp\,\dagger^{\alpha}$	0	0	0	$-\frac{1}{3}\,i\,k\,t_1$	$-\frac{1}{3}\,i\,\sqrt{2}\,k\,t_1$	0	$\frac{2\,k^2\,t_1}{3}$

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

Saturated propagator

	$0^+_\cdot\sigma^\parallel$	$0^+_\cdot\tau^\parallel$	$0^+_\cdot\tau^\perp$	$0^-_\cdot\sigma^\parallel$
$0^+_\cdot\sigma^\parallel\,\dagger$	$\frac{1}{6\,k^2\,r_3}$	0	0	0
$0^+_\cdot\tau^\parallel\,\dagger$	0	0	0	0
$0^+_\cdot\tau^\perp\,\dagger$	0	0	0	0
$0^-_\cdot\sigma^\parallel\,\dagger$	0	0	0	$-\frac{1}{t_1}$

	$1^+_\cdot\sigma^\parallel{}_{\alpha\beta}$	$1^+_\cdot\sigma^\perp{}_{\alpha\beta}$	$1^+_\cdot\tau^\parallel{}_{\alpha\beta}$	$1^-_\cdot\sigma^\parallel{}_{\alpha}$	$1^-_\cdot\sigma^\perp{}_{\alpha}$	$1^-_\cdot\tau^\parallel{}_{\alpha}$	$1^-_\cdot\tau^\perp{}_{\alpha}$
$1^+_\cdot\sigma^\parallel\,\dagger^{\alpha\beta}$	0	$-\frac{\sqrt{2}}{t_1+k^2\,t_1}$	$-\frac{i\,\sqrt{2}\,k}{t_1+k^2\,t_1}$	0	0	0	0
$1^+_\cdot\sigma^\perp\,\dagger^{\alpha\beta}$	$-\frac{\sqrt{2}}{t_1+k^2\,t_1}$	$\frac{-2\,k^2\left(2\,r_3+r_5\right)+t_1}{(1+k^2)^2\,t_1^2}$	$\frac{-2\,i\,k^3\left(2\,r_3+r_5\right)+i\,k\,t_1}{(1+k^2)^2\,t_1^2}$	0	0	0	0
$1^+_\cdot\tau^\parallel\,\dagger^{\alpha\beta}$	$\frac{i\,\sqrt{2}\,k}{t_1+k^2\,t_1}$	$\frac{i\left(2\,k^3\left(2\,r_3+r_5\right)-k\,t_1\right)}{(1+k^2)^2\,t_1^2}$	$\frac{-2\,k^4\left(2\,r_3+r_5\right)+k^2\,t_1}{(1+k^2)^2\,t_1^2}$	0	0	0	0
$1^-_\cdot\sigma^\parallel\,\dagger^{\alpha}$	0	0	0	$\frac{1}{k^2\left(2\,r_3+r_5\right)}$	$-\frac{1}{\sqrt{2}\left(k^2+2\,k^4\right)\left(2\,r_3+r_5\right)}$	0	$-\frac{i}{k\left(1+2\,k^2\right)\left(2\,r_3+r_5\right)}$
$1^-_\cdot\sigma^\perp\,\dagger^{\alpha}$	0	0	0	$-\frac{1}{\sqrt{2}\left(k^2+2\,k^4\right)\left(2\,r_3+r_5\right)}$	$\frac{6\,k^2\left(2\,r_3+r_5\right)+t_1}{2\left(k+2\,k^3\right)^2\left(2\,r_3+r_5\right)t_1}$	0	$\frac{i\left(6\,k^2\left(2\,r_3+r_5\right)+t_1\right)}{\sqrt{2}\,k\left(1+2\,k^2\right)^2\left(2\,r_3+r_5\right)t_1}$
$1^-_\cdot\tau^\parallel\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_\cdot\tau^\perp\,\dagger^{\alpha}$	0	0	0	$\frac{i}{k\left(1+2\,k^2\right)\left(2\,r_3+r_5\right)}$	$-\frac{i\left(6\,k^2\left(2\,r_3+r_5\right)+t_1\right)}{\sqrt{2}\,k\left(1+2\,k^2\right)^2\left(2\,r_3+r_5\right)t_1}$	0	$\frac{6\,k^2\left(2\,r_3+r_5\right)+t_1}{\left(1+2\,k^2\right)^2\left(2\,r_3+r_5\right)t_1}$

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

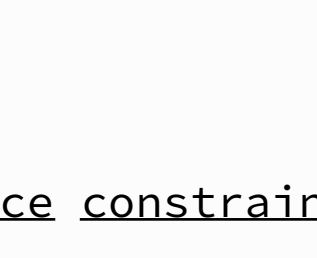
Source constraints

Spin-parity form	Covariant form	Multiplicities
$0^+_\cdot\tau^\perp == 0$	$\partial_\beta\partial_\alpha\tau_{(\Delta+\mathcal{K})}{}^{\alpha\beta} == 0$	1
$0^+_\cdot\tau^\parallel == 0$	$\partial_\beta\partial_\alpha\tau_{(\Delta+\mathcal{K})}{}^{\alpha\beta} == \partial_\beta\partial^\beta\tau_{(\Delta+\mathcal{K})}{}^{\alpha}{}_{\alpha}$	1
$2\,i\,k\ 1^-_\cdot\sigma^\perp{}^{\alpha} + 1^-_\cdot\tau^\perp{}^{\alpha} == 0$	$\partial_\chi\partial_\beta\partial^\alpha\tau_{(\Delta+\mathcal{K})}{}^{\beta\chi} == \partial_\chi\partial^\chi\partial_\beta\tau_{(\Delta+\mathcal{K})}{}^{\alpha\beta} + 2\,\partial_\delta\partial^\delta\partial_\chi\partial_\beta\sigma^{\beta\alpha\chi}$	3
$1^-_\cdot\tau^\parallel{}^{\alpha} == 0$	$\partial_\chi\partial_\beta\partial^\alpha\tau_{(\Delta+\mathcal{K})}{}^{\beta\chi} == \partial_\chi\partial^\chi\partial_\beta\tau_{(\Delta+\mathcal{K})}{}^{\beta\alpha}$	3
$i\,k\ 1^+_\cdot\sigma^\perp{}^{\alpha\beta} + 1^+_\cdot\tau^\parallel{}^{\alpha\beta} == 0$	$\partial_\chi\partial^\alpha\tau_{(\Delta+\mathcal{K})}{}^{\beta\chi} + \partial_\chi\partial^\beta\tau_{(\Delta+\mathcal{K})}{}^{\chi\alpha} + \partial_\chi\partial^\chi\tau_{(\Delta+\mathcal{K})}{}^{\alpha\beta} + 2\,\partial_\delta\partial_\chi\partial^\alpha\sigma^{\chi\beta\delta} + 2\,\partial_\delta\partial^\delta\partial_\chi\sigma^{\chi\alpha\beta} == \partial_\chi\partial^\alpha\tau_{(\Delta+\mathcal{K})}{}^{\chi\beta} + \partial_\chi\partial^\beta\tau_{(\Delta+\mathcal{K})}{}^{\alpha\chi} + \partial_\chi\partial^\chi\tau_{(\Delta+\mathcal{K})}{}^{\beta\alpha} + 2\,\partial_\delta\partial_\chi\partial^\beta\sigma^{\chi\alpha\delta}$	3
$-2\,i\,k\ 2^+_\cdot\sigma^\parallel{}^{\alpha\beta} + 2^+_\cdot\tau^\parallel{}^{\alpha\beta} == 0$	$-i\Big(4\,\partial_\delta\partial_\chi\partial^\beta\partial^\alpha\tau_{(\Delta+\mathcal{K})}{}^{\chi\delta} + 2\,\partial_\delta\partial^\delta\partial^\beta\partial^\alpha\tau_{(\Delta+\mathcal{K})}{}^{\chi}{}_{\chi} - 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\alpha\tau_{(\Delta+\mathcal{K})}{}^{\beta\chi} - 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\alpha\tau_{(\Delta+\mathcal{K})}{}^{\chi\beta} - 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\beta\tau_{(\Delta+\mathcal{K})}{}^{\alpha\chi} - 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\chi\tau_{(\Delta+\mathcal{K})}{}^{\alpha\beta} + 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\chi\tau_{(\Delta+\mathcal{K})}{}^{\beta\alpha} + 4\,i\ k^\chi\ \partial_\epsilon\partial_\chi\partial^\beta\partial^\alpha\sigma^\delta{}_\delta{}^\epsilon - 6\,i\ k^\chi\ \partial_\epsilon\partial_\delta\partial_\chi\partial^\alpha\sigma^{\delta\beta\epsilon} - 6\,i\ k^\chi\ \partial_\epsilon\partial_\delta\partial_\chi\partial^\beta\sigma^{\delta\alpha\epsilon} + 6\,i\ k^\chi\ \partial_\epsilon\partial^\epsilon\partial_\delta\partial_\chi\sigma^{\alpha\beta\delta} + 6\,i\ k^\chi\ \partial_\epsilon\partial^\epsilon\partial_\delta\partial_\chi\sigma^{\beta\alpha\delta} + 2\ \eta^{\alpha\beta}\ \partial_\epsilon\partial^\epsilon\partial_\delta\partial_\chi\tau_{(\Delta+\mathcal{K})}{}^{\chi\delta} - 2\ \eta^{\alpha\beta}\ \partial_\epsilon\partial^\epsilon\partial_\delta\partial^\delta\tau_{(\Delta+\mathcal{K})}{}^{\chi}{}_{\chi} - 4\,i\ \eta^{\alpha\beta}\ k^\chi\ \partial_\phi\partial^\phi\partial_\epsilon\partial_\chi\sigma^\delta{}_\delta{}^\epsilon\Big) == 0$	5
Total expected gauge generators:		16

Massive spectrum

(There are no massive particles)

Massless spectrum



Massless particle

Pole residue:	$-\frac{7}{2\,r_3+r_5} + \frac{-2\,t_1\,p^2 - 4\,(2\,r_3+r_5)\,p^4}{t_1^2} > 0$
Polarisations:	2

Gauge symmetries

(Not yet implemented in PSALTer)

Unitarity conditions

$r_3 \in \mathbb{R}\ \&\&\ r_5 < -2\,r_3\ \&\&\ \left(t_1 < 0 \,\|\, t_1 > 0\right)$

Validity assumptions

(Not yet implemented in PSALTer)