PSALTer results panel

$$S == \iiiint\Big(\mathcal{A}^{\alpha\beta\chi}{}_{\alpha\beta\chi} \sigma + f^{\alpha\beta}{}_{\alpha\beta} \tau(\Delta+\mathcal{K}) + \frac{1}{6} t_{1\cdot} \Big(2\, \mathcal{A}^{\alpha\prime}{}_{\alpha}\, \mathcal{A}_{\prime}{}^{\theta}{}_{\theta} - 4\, \mathcal{A}_{\alpha}{}^{\theta}{}_{\theta}\, \partial_{\prime} f^{\alpha\prime}{}_{\alpha} + 4\, \mathcal{A}_{\prime}{}^{\theta}{}_{\theta}\, \partial^{\prime} f^{\alpha}{}_{\alpha} - 2\, \partial_{\prime} f^{\theta}{}_{\theta}\, \partial^{\prime} f^{\alpha}{}_{\alpha} - 2\, \partial_{\prime} f^{\alpha\prime}\, \partial_{\theta} f_{\alpha}{}^{\theta} + 4\, \partial^{\prime} f^{\alpha}{}_{\alpha}\, \partial_{\theta} f_{\prime}{}^{\theta} - 6\, \partial_{\alpha} f_{\prime\theta}\, \partial^{\theta} f^{\alpha\prime} - 3\, \partial_{\alpha} f_{\theta\prime}\, \partial^{\theta} f^{\alpha\prime} + 3\, \partial_{\prime} f_{\alpha\theta}\, \partial^{\theta} f^{\alpha\prime} + 3\, \partial_{\theta} f_{\alpha\prime}\, \partial^{\theta} f^{\alpha\prime} + 3\, \partial_{\theta} f_{\prime\alpha}\, \partial^{\theta} f^{\alpha\prime} + 6\, \mathcal{A}_{\alpha\theta\prime} \left(\mathcal{A}^{\alpha\prime\theta} + 2\, \partial^{\theta} f^{\alpha\prime}\right)\Big) + r_{5\cdot} \Big(\partial_{\prime} \mathcal{A}_{\theta}{}^{\kappa}{}_{\kappa}\, \partial^{\theta} \mathcal{A}^{\alpha\prime}{}_{\alpha} - \partial_{\theta} \mathcal{A}_{\prime}{}^{\kappa}{}_{\kappa}\, \partial^{\theta} \mathcal{A}^{\alpha\prime}{}_{\alpha} - \left(\partial_{\alpha} \mathcal{A}^{\alpha\prime\theta} - 2\, \partial^{\theta} \mathcal{A}^{\alpha\prime}{}_{\alpha}\right) \left(\partial_{\kappa} \mathcal{A}_{\prime}{}^{\kappa}{}_{\theta} - \partial_{\kappa} \mathcal{A}_{\theta}{}^{\kappa}{}_{\prime}\right)\Big)\Big)[t, x, y, z]\, dz\, dy\, dx\, dt$$

Wave operator

	$0^+_{\cdot}\mathcal{A}^{\parallel}$	$0^+_{\cdot}f^{\parallel}$	$0^+_{\cdot}f^{\perp}$	$0^-_{\cdot}\mathcal{A}^{\parallel}$
$0^+_{\cdot}\mathcal{A}^{\parallel}\,\dagger$	0	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	$-t_{1\cdot}$

	$1^+_{\cdot}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$1^+_{\cdot}\mathcal{A}^{\perp}{}_{\alpha\beta}$	$1^+_{\cdot}f^{\parallel}{}_{\alpha\beta}$	$1^-_{\cdot}\mathcal{A}^{\parallel}{}_{\alpha}$	$1^-_{\cdot}\mathcal{A}^{\perp}{}_{\alpha}$	$1^-_{\cdot}f^{\parallel}{}_{\alpha}$	$1^-_{\cdot}f^{\perp}{}_{\alpha}$
$1^+_{\cdot}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$k^2 r_{5\cdot} - \frac{t_{1\cdot}}{2}$	$-\frac{t_{1\cdot}}{\sqrt{2}}$	$-\frac{i k t_{1\cdot}}{\sqrt{2}}$	0	0	0	0
$1^+_{\cdot}\mathcal{A}^{\perp}\,\dagger^{\alpha\beta}$	$-\frac{t_{1\cdot}}{\sqrt{2}}$	0	0	0	0	0	0
$1^+_{\cdot}f^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{i k t_{1\cdot}}{\sqrt{2}}$	0	0	0	0	0	0
$1^-_{\cdot}\mathcal{A}^{\parallel}\,\dagger^{\alpha}$	0	0	0	$k^2 r_{5\cdot} + \frac{t_{1\cdot}}{6}$	$\frac{t_{1\cdot}}{3\sqrt{2}}$	0	$\frac{i k t_{1\cdot}}{3}$
$1^-_{\cdot}\mathcal{A}^{\perp}\,\dagger^{\alpha}$	0	0	0	$\frac{t_{1\cdot}}{3\sqrt{2}}$	$\frac{t_{1\cdot}}{3}$	0	$\frac{1}{3} i \sqrt{2}\, k t_{1\cdot}$
$1^-_{\cdot}f^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_{\cdot}f^{\perp}\,\dagger^{\alpha}$	0	0	0	$-\frac{1}{3} i k t_{1\cdot}$	$-\frac{1}{3} i \sqrt{2}\, k t_{1\cdot}$	0	$\frac{2 k^2 t_{1\cdot}}{3}$

	$2^+_{\cdot}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$2^+_{\cdot}f^{\parallel}{}_{\alpha\beta}$	$2^-_{\cdot}\mathcal{A}^{\parallel}{}_{\alpha\beta\chi}$
$2^+_{\cdot}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{t_{1\cdot}}{2}$	$-\frac{i k t_{1\cdot}}{\sqrt{2}}$	0
$2^+_{\cdot}f^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{i k t_{1\cdot}}{\sqrt{2}}$	$k^2 t_{1\cdot}$	0
$2^-_{\cdot}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	$\frac{t_{1\cdot}}{2}$

Saturated propagator

	$0^+_{\cdot}\sigma^{\parallel}$	$0^+_{\cdot}\tau^{\parallel}$	$0^+_{\cdot}\tau^{\perp}$	$0^-_{\cdot}\sigma^{\parallel}$
$0^+_{\cdot}\sigma^{\parallel}\,\dagger$	0	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	$-\frac{1}{t_{1\cdot}}$

	$1^+_{\cdot}\sigma^{\parallel}{}_{\alpha\beta}$	$1^+_{\cdot}\sigma^{\perp}{}_{\alpha\beta}$	$1^+_{\cdot}\tau^{\parallel}{}_{\alpha\beta}$	$1^-_{\cdot}\sigma^{\parallel}{}_{\alpha}$	$1^-_{\cdot}\sigma^{\perp}{}_{\alpha}$	$1^-_{\cdot}\tau^{\parallel}{}_{\alpha}$	$1^-_{\cdot}\tau^{\perp}{}_{\alpha}$
$1^+_{\cdot}\sigma^{\parallel}\,\dagger^{\alpha\beta}$	0	$-\frac{\sqrt{2}}{t_{1\cdot}+k^2 t_{1\cdot}}$	$-\frac{i\sqrt{2}\,k}{t_{1\cdot}+k^2 t_{1\cdot}}$	0	0	0	0
$1^+_{\cdot}\sigma^{\perp}\,\dagger^{\alpha\beta}$	$-\frac{\sqrt{2}}{t_{1\cdot}+k^2 t_{1\cdot}}$	$\frac{-2k^2 r_{5\cdot}+t_{1\cdot}}{(1+k^2)^2 t_{1\cdot}^2}$	$-\frac{i\left(2k^3 r_{5\cdot}-k t_{1\cdot}\right)}{(1+k^2)^2 t_{1\cdot}^2}$	0	0	0	0
$1^+_{\cdot}\tau^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{i\sqrt{2}\,k}{t_{1\cdot}+k^2 t_{1\cdot}}$	$\frac{i\left(2k^3 r_{5\cdot}-k t_{1\cdot}\right)}{(1+k^2)^2 t_{1\cdot}^2}$	$\frac{-2k^4 r_{5\cdot}+k^2 t_{1\cdot}}{(1+k^2)^2 t_{1\cdot}^2}$	0	0	0	0
$1^-_{\cdot}\sigma^{\parallel}\,\dagger^{\alpha}$	0	0	0	$\frac{1}{k^2 r_{5\cdot}}$	$-\frac{1}{\sqrt{2}\left(k^2 r_{5\cdot}+2k^4 r_{5\cdot}\right)}$	0	$-\frac{i}{k r_{5\cdot}+2k^3 r_{5\cdot}}$
$1^-_{\cdot}\sigma^{\perp}\,\dagger^{\alpha}$	0	0	0	$-\frac{1}{\sqrt{2}\left(k^2 r_{5\cdot}+2k^4 r_{5\cdot}\right)}$	$\frac{6k^2 r_{5\cdot}+t_{1\cdot}}{2\left(k+2k^3\right)^2 r_{5\cdot} t_{1\cdot}}$	0	$\frac{i\left(6k^2 r_{5\cdot}+t_{1\cdot}\right)}{\sqrt{2}\,k\left(1+2k^2\right)^2 r_{5\cdot} t_{1\cdot}}$
$1^-_{\cdot}\tau^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_{\cdot}\tau^{\perp}\,\dagger^{\alpha}$	0	0	0	$\frac{i}{k r_{5\cdot}+2k^3 r_{5\cdot}}$	$-\frac{i\left(6k^2 r_{5\cdot}+t_{1\cdot}\right)}{\sqrt{2}\,k\left(1+2k^2\right)^2 r_{5\cdot} t_{1\cdot}}$	0	$\frac{6k^2 r_{5\cdot}+t_{1\cdot}}{\left(1+2k^2\right)^2 r_{5\cdot} t_{1\cdot}}$

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

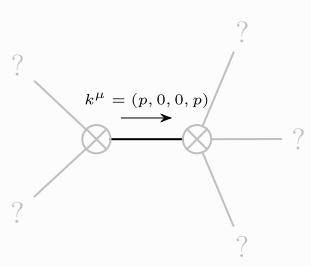
Source constraints

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

Massive spectrum

(There are no massive particles)

Massless spectrum



Massless particle

Pole residue:	$-\frac{7}{r_{5\cdot}} - \frac{2p^2}{t_{1\cdot}} - \frac{4 r_{5\cdot} p^4}{t_{1\cdot}^2} > 0$
Polarisations:	2

Gauge symmetries

(Not yet implemented in PSALTer)

Unitarity conditions

$r_{5\cdot} < 0 \;\&\&\; \left(t_{1\cdot} < 0 \,\|\, t_{1\cdot} > 0\right)$

Validity assumptions

(Not yet implemented in PSALTer)