PSALTer results panel

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

Wave operator

	$0^+_{.}\mathcal{A}^{\parallel}$	$0^+_{.}f^{\parallel}$	$0^+_{.}f^{\perp}$	$0^-_{.}\mathcal{A}^{\parallel}$
$0^+_{.}\mathcal{A}^{\parallel}\,\dagger$	$-t_{.1}$	$i\sqrt{2}\,k t_{.1}$	0	0
$0^+_{.}f^{\parallel}\,\dagger$	$-i\sqrt{2}\,k t_{.1}$	$-2k^2 t_{.1}$	0	0
$0^+_{.}f^{\perp}\,\dagger$	0	0	0	0
$0^-_{.}\mathcal{A}^{\parallel}\,\dagger$	0	0	0	$-t_{.1}$

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

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

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

Source constraints

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

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

(No particles)

Unitarity conditions

$r_{.1} < 0 \;\&\&\; t_{.1} > 0$