PSALTer results panel

$$\mathcal{S} == \iiiint (\mathcal{A}^{\alpha\beta\chi}\ \sigma_{\alpha\beta\chi} + f^{\alpha\beta}\ \tau(\Delta+\mathcal{K})_{\alpha\beta} - 2 r_3 (\partial_\beta \mathcal{A}_\iota{}^\theta{}_\theta \partial^\iota \mathcal{A}^{\alpha\beta}{}_\alpha + \partial_\iota \mathcal{A}_\beta{}^\theta{}_\theta \partial^\iota \mathcal{A}^{\alpha\beta}{}_\alpha + \partial_\alpha \mathcal{A}^{\alpha\beta\iota} \partial_\theta \mathcal{A}_\beta{}^\theta{}_\iota - 2 \partial^\iota \mathcal{A}^{\alpha\beta}{}_\alpha \partial_\theta \mathcal{A}_\beta{}^\theta{}_\iota + \partial_\alpha \mathcal{A}^{\alpha\beta\iota} \partial_\theta \mathcal{A}_\iota{}^\theta{}_\beta - 2 \partial^\iota \mathcal{A}^{\alpha\beta}{}_\alpha \partial_\theta \mathcal{A}_\iota{}^\theta{}_\beta + 2 \partial_\beta \mathcal{A}_{\iota\theta\alpha} \partial^\theta \mathcal{A}^{\alpha\beta\iota}) + \frac{1}{6} 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 - 6 \partial_\alpha f_{\iota\theta} \partial^\theta f^{\alpha\iota} - 3 \partial_\alpha f_{\theta\iota} \partial^\theta f^{\alpha\iota} + 3 \partial_\iota f_{\alpha\theta} \partial^\theta f^{\alpha\iota} + 3 \partial_\theta f_{\alpha\iota} \partial^\theta f^{\alpha\iota} + 3 \partial_\theta f_{\iota\alpha} \partial^\theta f^{\alpha\iota} + 6 \mathcal{A}_{\alpha\theta\iota} (\mathcal{A}^{\alpha\iota\theta} + 2 \partial^\theta f^{\alpha\iota})) + r_5 (\partial_\iota \mathcal{A}_\theta{}^\kappa{}_\kappa \partial^\theta \mathcal{A}^{\alpha\iota}{}_\alpha - \partial_\theta \mathcal{A}_\iota{}^\kappa{}_\kappa \partial^\theta \mathcal{A}^{\alpha\iota}{}_\alpha - (\partial_\alpha \mathcal{A}^{\alpha\iota\theta} - 2 \partial^\theta \mathcal{A}^{\alpha\iota}{}_\alpha)(\partial_\kappa \mathcal{A}_\iota{}^\kappa{}_\theta - \partial_\kappa \mathcal{A}_\theta{}^\kappa{}_\iota))) [t, x, y, z]\, dz\, dy\, dx\, dt$$

Wave operator

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

	$1^+_\cdot \mathcal{A}^\parallel{}_{\alpha\beta}$	$1^+_\cdot \mathcal{A}^\perp{}_{\alpha\beta}$	$1^+_\cdot f^\parallel{}_{\alpha\beta}$	$1^-_\cdot \mathcal{A}^\parallel{}_\alpha$	$1^-_\cdot \mathcal{A}^\perp{}_\alpha$	$1^-_\cdot f^\parallel{}_\alpha$	$1^-_\cdot f^\perp{}_\alpha$
$1^+_\cdot \mathcal{A}^\parallel\,\dagger^{\alpha\beta}$	$k^2(2r_3 + r_5) - \frac{t_1}{2}$	$-\frac{t_1}{\sqrt{2}}$	$-\frac{ikt_1}{\sqrt{2}}$	0	0	0	0
$1^+_\cdot \mathcal{A}^\perp\,\dagger^{\alpha\beta}$	$-\frac{t_1}{\sqrt{2}}$	0	0	0	0	0	0
$1^+_\cdot f^\parallel\,\dagger^{\alpha\beta}$	$\frac{ikt_1}{\sqrt{2}}$	0	0	0	0	0	0
$1^-_\cdot \mathcal{A}^\parallel\,\dagger^\alpha$	0	0	0	$k^2(2r_3 + r_5) + \frac{t_1}{6}$	$\frac{t_1}{3\sqrt{2}}$	0	$\frac{ikt_1}{3}$
$1^-_\cdot \mathcal{A}^\perp\,\dagger^\alpha$	0	0	0	$\frac{t_1}{3\sqrt{2}}$	$\frac{t_1}{3}$	0	$\frac{1}{3} i \sqrt{2}\, kt_1$
$1^-_\cdot f^\parallel\,\dagger^\alpha$	0	0	0	0	0	0	0
$1^-_\cdot f^\perp\,\dagger^\alpha$	0	0	0	$-\frac{1}{3} ikt_1$	$-\frac{1}{3} i \sqrt{2}\, kt_1$	0	$\frac{2k^2 t_1}{3}$

	$2^+_\cdot \mathcal{A}^\parallel{}_{\alpha\beta}$	$2^+_\cdot f^\parallel{}_{\alpha\beta}$	$2^-_\cdot \mathcal{A}^\parallel{}_{\alpha\beta\chi}$
$2^+_\cdot \mathcal{A}^\parallel\,\dagger^{\alpha\beta}$	$\frac{t_1}{2}$	$-\frac{ikt_1}{\sqrt{2}}$	0
$2^+_\cdot f^\parallel\,\dagger^{\alpha\beta}$	$\frac{ikt_1}{\sqrt{2}}$	$k^2 t_1$	0
$2^-_\cdot \mathcal{A}^\parallel\,\dagger^{\alpha\beta\chi}$	0	0	$\frac{t_1}{2}$

Saturated propagator

	$0^+_\cdot \sigma^\parallel$	$0^+_\cdot \tau^\parallel$	$0^+_\cdot \tau^\perp$	$0^-_\cdot \sigma^\parallel$
$0^+_\cdot \sigma^\parallel\,\dagger$	$\frac{1}{6k^2 r_3}$	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
$1^+_\cdot \sigma^\perp\,\dagger^{\alpha\beta}$	$-\frac{\sqrt{2}}{t_1 + k^2 t_1}$	$\frac{-2k^2(2r_3 + r_5) + t_1}{(1+k^2)^2 t_1^2}$	$\frac{-2ik^3(2r_3 + r_5) + ikt_1}{(1+k^2)^2 t_1^2}$	0	0	0	0
$1^+_\cdot \tau^\parallel\,\dagger^{\alpha\beta}$	$\frac{i\sqrt{2}\,k}{t_1 + k^2 t_1}$	$\frac{i(2k^3(2r_3 + r_5) - kt_1)}{(1+k^2)^2 t_1^2}$	$\frac{-2k^4(2r_3 + r_5) + k^2 t_1}{(1+k^2)^2 t_1^2}$	0	0	0	0
$1^-_\cdot \sigma^\parallel\,\dagger^\alpha$	0	0	0	$\frac{1}{k^2(2r_3 + r_5)}$	$-\frac{1}{\sqrt{2}(k^2 + 2k^4)(2r_3 + r_5)}$	0	$-\frac{i}{k(1+2k^2)(2r_3 + r_5)}$
$1^-_\cdot \sigma^\perp\,\dagger^\alpha$	0	0	0	$-\frac{1}{\sqrt{2}(k^2 + 2k^4)(2r_3 + r_5)}$	$\frac{6k^2(2r_3 + r_5) + t_1}{2(k + 2k^3)^2 (2r_3 + r_5) t_1}$	0	$\frac{i(6k^2(2r_3 + r_5) + t_1)}{\sqrt{2}\,k(1+2k^2)^2(2r_3 + r_5) t_1}$
$1^-_\cdot \tau^\parallel\,\dagger^\alpha$	0	0	0	0	0	0	0
$1^-_\cdot \tau^\perp\,\dagger^\alpha$	0	0	0	$\frac{i}{k(1+2k^2)(2r_3 + r_5)}$	$-\frac{i(6k^2(2r_3 + r_5) + t_1)}{\sqrt{2}\,k(1+2k^2)^2(2r_3 + r_5) t_1}$	0	$\frac{6k^2(2r_3 + r_5) + t_1}{(1+2k^2)^2(2r_3 + r_5) t_1}$

	$2^+_\cdot \sigma^\parallel{}_{\alpha\beta}$	$2^+_\cdot \tau^\parallel{}_{\alpha\beta}$	$2^-_\cdot \sigma^\parallel{}_{\alpha\beta\chi}$
$2^+_\cdot \sigma^\parallel\,\dagger^{\alpha\beta}$	$\frac{2}{(1+2k^2)^2 t_1}$	$-\frac{2i\sqrt{2}\,k}{(1+2k^2)^2 t_1}$	0
$2^+_\cdot \tau^\parallel\,\dagger^{\alpha\beta}$	$\frac{2i\sqrt{2}\,k}{(1+2k^2)^2 t_1}$	$\frac{4k^2}{(1+2k^2)^2 t_1}$	0
$2^-_\cdot \sigma^\parallel\,\dagger^{\alpha\beta\chi}$	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
$2ik\ 1^-_\cdot \sigma^{\perp\alpha} + 1^-_\cdot \tau^{\perp\alpha} == 0$	$\partial_\chi \partial_\beta \partial^\alpha \tau(\Delta+\mathcal{K})^{\beta\chi} == \partial_\chi \partial^\chi \partial_\beta \tau(\Delta+\mathcal{K})^{\alpha\beta} + 2\partial_\delta \partial^\delta \partial_\chi \partial_\beta \sigma^{\beta\alpha\chi}$	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
$ik\ 1^+_\cdot \sigma^{\perp\alpha\beta} + 1^+_\cdot \tau^{\parallel\alpha\beta} == 0$	$\partial_\chi \partial^\alpha \tau(\Delta+\mathcal{K})^{\beta\chi} + \partial_\chi \partial^\beta \tau(\Delta+\mathcal{K})^{\chi\alpha} + \partial_\chi \partial^\chi \tau(\Delta+\mathcal{K})^{\alpha\beta} + 2\partial_\delta \partial_\chi \partial^\alpha \sigma^{\chi\beta\delta} + 2\partial_\delta \partial^\delta \partial_\chi \sigma^{\chi\alpha\beta} == \partial_\chi \partial^\alpha \tau(\Delta+\mathcal{K})^{\chi\beta} + \partial_\chi \partial^\beta \tau(\Delta+\mathcal{K})^{\alpha\chi} + \partial_\chi \partial^\chi \tau(\Delta+\mathcal{K})^{\beta\alpha} + 2\partial_\delta \partial_\chi \partial^\beta \sigma^{\chi\alpha\delta}$	3
$-2ik\ 2^+_\cdot \sigma^{\parallel\alpha\beta} + 2^+_\cdot \tau^{\parallel\alpha\beta} == 0$	$-i(4\partial_\delta \partial_\chi \partial^\beta \partial^\alpha \tau(\Delta+\mathcal{K})^{\chi\delta} + 2\partial_\delta \partial^\delta \partial^\beta \partial^\alpha \tau(\Delta+\mathcal{K})^\chi{}_\chi - 3\partial_\delta \partial^\delta \partial_\chi \partial^\alpha \tau(\Delta+\mathcal{K})^{\beta\chi} - 3\partial_\delta \partial^\delta \partial_\chi \partial^\beta \tau(\Delta+\mathcal{K})^{\chi\alpha} - 3\partial_\delta \partial^\delta \partial_\chi \partial^\beta \tau(\Delta+\mathcal{K})^{\alpha\chi} + 3\partial_\delta \partial^\delta \partial_\chi \partial^\chi \tau(\Delta+\mathcal{K})^{\alpha\beta} + 3\partial_\delta \partial^\delta \partial_\chi \partial^\chi \tau(\Delta+\mathcal{K})^{\beta\alpha} + 4i\, k^\chi\, \partial_\epsilon \partial_\chi \partial^\beta \partial^\alpha \sigma^\delta{}_\delta{}^\epsilon - 6i\, k^\chi\, \partial_\epsilon \partial_\delta \partial_\chi \partial^\alpha \sigma^{\delta\beta\epsilon} - 6i\, k^\chi\, \partial_\epsilon \partial_\delta \partial_\chi \partial^\beta \sigma^{\delta\alpha\epsilon} + 6i\, k^\chi\, \partial_\epsilon \partial^\epsilon \partial_\delta \partial_\chi \sigma^{\alpha\beta\delta} + 6i\, k^\chi\, \partial_\epsilon \partial^\epsilon \partial_\delta \partial_\chi \sigma^{\beta\alpha\delta} + 2\,\eta^{\alpha\beta}\, \partial_\epsilon \partial^\epsilon \partial_\delta \partial_\chi \tau(\Delta+\mathcal{K})^{\chi\delta} - 2\,\eta^{\alpha\beta}\, \partial_\epsilon \partial^\epsilon \partial_\delta \partial^\delta \tau(\Delta+\mathcal{K})^\chi{}_\chi - 4i\,\eta^{\alpha\beta}\, k^\chi\, \partial_\phi \partial^\phi \partial_\epsilon \partial_\chi \sigma^\delta{}_\delta{}^\epsilon) == 0$	5
Total expected gauge generators:		16

Massive spectrum

(No particles)

Massless spectrum

Massless particle

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

Unitarity conditions

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