PSALTer results panel

$$\mathcal{S} == \iiiint (\frac{1}{6} (-4 t_3 \, \mathcal{A}^{\alpha\iota}{}_\alpha \, \mathcal{A}_{\iota}{}^\theta{}_\theta + 6 \, \mathcal{A}^{\alpha\beta\chi} \; \sigma_{\alpha\beta\chi} + 6 \, f^{\alpha\beta} \; \tau \, (\Delta+\mathcal{K})_{\alpha\beta} + 8 t_3 \, \mathcal{A}_\alpha{}^\theta{}_\theta \, \partial_\iota f^{\alpha\iota} - 3 r_3 \, \partial_\beta \mathcal{A}_\iota{}^\theta{}_\theta \, \partial^\iota \mathcal{A}^{\alpha\beta}{}_\alpha - 3 r_3 \, \partial_\iota \mathcal{A}_\beta{}^\theta{}_\theta \, \partial^\iota \mathcal{A}^{\alpha\beta}{}_\alpha - 8 t_3 \, \mathcal{A}_\iota{}^\theta{}_\theta \, \partial^\iota f^\alpha{}_\alpha +$$
$$4 t_3 \, \partial_\iota f^\theta{}_\theta \, \partial^\iota f^\alpha{}_\alpha - 3 r_3 \, \partial_\alpha \mathcal{A}^{\alpha\beta\iota} \, \partial_\theta \mathcal{A}_\beta{}^\theta{}_\iota + 6 r_3 \, \partial^\iota \mathcal{A}^{\alpha\beta}{}_\alpha \, \partial_\theta \mathcal{A}_\beta{}^\theta{}_\iota - 3 r_3 \, \partial_\alpha \mathcal{A}^{\alpha\beta\iota} \, \partial_\theta \mathcal{A}_\iota{}^\theta{}_\beta + 6 r_3 \, \partial^\iota \mathcal{A}^{\alpha\beta}{}_\alpha \, \partial_\theta \mathcal{A}_\iota{}^\theta{}_\beta + 4 t_3 \, f^{\alpha\iota} \, \partial_\theta f_\alpha{}^\theta{}_\iota -$$
$$8 t_3 \, \partial^\iota f^\alpha{}_\alpha \, \partial_\theta f_\iota{}^\theta{}_\iota + 8 r_2 \, \partial_\beta \mathcal{A}_{\alpha\iota\theta} \, \partial^\theta \mathcal{A}^{\alpha\beta\iota} - 4 r_2 \, \partial_\beta \mathcal{A}_{\alpha\theta\iota} \, \partial^\theta \mathcal{A}^{\alpha\beta\iota} + 4 r_2 \, \partial_\beta \mathcal{A}_{\iota\theta\alpha} \, \partial^\theta \mathcal{A}^{\alpha\beta\iota} - 24 r_3 \, \partial_\beta \mathcal{A}_{\iota\theta\alpha} \, \partial^\theta \mathcal{A}^{\alpha\beta\iota} -$$
$$2 r_2 \, \partial_\iota \mathcal{A}_{\alpha\beta\theta} \, \partial^\theta \mathcal{A}^{\alpha\beta\iota} + 2 r_2 \, \partial_\theta \mathcal{A}_{\alpha\beta\iota} \, \partial^\theta \mathcal{A}^{\alpha\beta\iota} - 4 r_2 \, \partial_\theta \mathcal{A}_{\alpha\iota\beta} \, \partial^\theta \mathcal{A}^{\alpha\beta\iota} + 6 r_5 \, \partial_\iota \mathcal{A}_\theta{}^\kappa{}_\kappa \, \partial^\theta \mathcal{A}^{\alpha\iota}{}_\alpha - 6 r_5 \, \partial_\theta \mathcal{A}_\iota{}^\kappa{}_\kappa \, \partial^\theta \mathcal{A}^{\alpha\iota}{}_\alpha -$$
$$6 r_5 \, \partial_\alpha \mathcal{A}^{\alpha\iota\theta} \, \partial_\kappa \mathcal{A}_\iota{}^\kappa{}_\theta + 12 r_5 \, \partial^\theta \mathcal{A}^{\alpha\iota}{}_\alpha \, \partial_\kappa \mathcal{A}_\iota{}^\kappa{}_\theta + 6 r_5 \, \partial_\alpha \mathcal{A}^{\alpha\iota\theta} \, \partial_\kappa \mathcal{A}_\theta{}^\kappa{}_\iota - 12 r_5 \, \partial^\theta \mathcal{A}^{\alpha\iota}{}_\alpha \, \partial_\kappa \mathcal{A}_\theta{}^\kappa{}_\iota)) [t, x, y, z] \, dz \, dy \, dx \, dt$$

Wave operator

	$0^+\mathcal{A}^\parallel$	$0^+f^\parallel$	$0^+f^\perp$	$0^-\mathcal{A}^\parallel$
$0^+\mathcal{A}^\parallel\dagger$	t_3	$-i\sqrt{2}\,kt_3$	0	0
$0^+f^\parallel\dagger$	$i\sqrt{2}\,kt_3$	$2k^2t_3$	0	0
$0^+f^\perp\dagger$	0	0	0	0
$0^-\mathcal{A}^\parallel\dagger$	0	0	0	k^2r_2

	$1^+\mathcal{A}^\parallel_{\alpha\beta}$	$1^+\mathcal{A}^\perp_{\alpha\beta}$	$1^+f^\parallel_{\alpha\beta}$	$1^-\mathcal{A}^\parallel_\alpha$	$1^-\mathcal{A}^\perp_\alpha$	$1^-f^\parallel_\alpha$	$1^-f^\perp_\alpha$
$1^+\mathcal{A}^\parallel\dagger^{\alpha\beta}$	$k^2(2r_3+r_5)$	0	0	0	0	0	0
$1^+\mathcal{A}^\perp\dagger^{\alpha\beta}$	0	0	0	0	0	0	0
$1^+f^\parallel\dagger^{\alpha\beta}$	0	0	0	0	0	0	0
$1^-\mathcal{A}^\parallel\dagger^\alpha$	0	0	0	$k^2(\frac{r_3}{2}+r_5)+\frac{2t_3}{3}$	$-\frac{\sqrt{2}\,t_3}{3}$	0	$-\frac{2}{3}ikt_3$
$1^-\mathcal{A}^\perp\dagger^\alpha$	0	0	0	$-\frac{\sqrt{2}\,t_3}{3}$	$\frac{t_3}{3}$	0	$\frac{1}{3}i\sqrt{2}\,kt_3$
$1^-f^\parallel\dagger^\alpha$	0	0	0	0	0	0	0
$1^-f^\perp\dagger^\alpha$	0	0	0	$\frac{2ikt_3}{3}$	$-\frac{1}{3}i\sqrt{2}\,kt_3$	0	$\frac{2k^2t_3}{3}$

	$2^+\mathcal{A}^\parallel_{\alpha\beta}$	$2^+f^\parallel_{\alpha\beta}$	$2^-\mathcal{A}^\parallel_{\alpha\beta\chi}$
$2^+\mathcal{A}^\parallel\dagger^{\alpha\beta}$	$-\frac{3k^2r_3}{2}$	0	0
$2^+f^\parallel\dagger^{\alpha\beta}$	0	0	0
$2^-\mathcal{A}^\parallel\dagger^{\alpha\beta\chi}$	0	0	0

Saturated propagator

	$0^+\sigma^\parallel$	$0^+\tau^\parallel$	$0^+\tau^\perp$	$0^-\sigma^\parallel$
$0^+\sigma^\parallel\dagger$	$\frac{1}{(1+2k^2)^2t_3}$	$-\frac{i\sqrt{2}\,k}{(1+2k^2)^2t_3}$	0	0
$0^+\tau^\parallel\dagger$	$\frac{i\sqrt{2}\,k}{(1+2k^2)^2t_3}$	$\frac{2k^2}{(1+2k^2)^2t_3}$	0	0
$0^+\tau^\perp\dagger$	0	0	0	0
$0^-\sigma^\parallel\dagger$	0	0	0	$\frac{1}{k^2r_2}$

	$1^+\sigma^\parallel_{\alpha\beta}$	$1^+\sigma^\perp_{\alpha\beta}$	$1^+\tau^\parallel_{\alpha\beta}$	$1^-\sigma^\parallel_\alpha$	$1^-\sigma^\perp_\alpha$	$1^-\tau^\parallel_\alpha$	$1^-\tau^\perp_\alpha$
$1^+\sigma^\parallel\dagger^{\alpha\beta}$	$\frac{1}{k^2(2r_3+r_5)}$	0	0	0	0	0	0
$1^+\sigma^\perp\dagger^{\alpha\beta}$	0	0	0	0	0	0	0
$1^+\tau^\parallel\dagger^{\alpha\beta}$	0	0	0	0	0	0	0
$1^-\sigma^\parallel\dagger^\alpha$	0	0	0	$\frac{2}{k^2(r_3+2r_5)}$	$\frac{2\sqrt{2}}{k^2(1+2k^2)(r_3+2r_5)}$	0	$\frac{4i}{k(1+2k^2)(r_3+2r_5)}$
$1^-\sigma^\perp\dagger^\alpha$	0	0	0	$\frac{2\sqrt{2}}{k^2(1+2k^2)(r_3+2r_5)}$	$\frac{3k^2(r_3+2r_5)+4t_3}{(k+2k^3)^2(r_3+2r_5)t_3}$	0	$\frac{i\sqrt{2}\,(3k^2(r_3+2r_5)+4t_3)}{k(1+2k^2)^2(r_3+2r_5)t_3}$
$1^-\tau^\parallel\dagger^\alpha$	0	0	0	0	0	0	0
$1^-\tau^\perp\dagger^\alpha$	0	0	0	$-\frac{4i}{k(1+2k^2)(r_3+2r_5)}$	$-\frac{i\sqrt{2}\,(3k^2(r_3+2r_5)+4t_3)}{k(1+2k^2)^2(r_3+2r_5)t_3}$	0	$\frac{6k^2(r_3+2r_5)+8t_3}{(1+2k^2)^2(r_3+2r_5)t_3}$

	$2^+\sigma^\parallel_{\alpha\beta}$	$2^+\tau^\parallel_{\alpha\beta}$	$2^-\sigma^\parallel_{\alpha\beta\chi}$
$2^+\sigma^\parallel\dagger^{\alpha\beta}$	$-\frac{2}{3k^2r_3}$	0	0
$2^+\tau^\parallel\dagger^{\alpha\beta}$	0	0	0
$2^-\sigma^\parallel\dagger^{\alpha\beta\chi}$	0	0	0

Source constraints

Spin-parity form	Covariant form	Multiplicities
$0^+\tau^\perp == 0$	$\partial_\iota\partial_\alpha\tau\,(\Delta+\mathcal{K})^{\alpha\beta} == 0$	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
$2ik\,1^-\sigma^\perp{}^\alpha + 1^-\tau^\perp{}^\alpha == 0$	$\partial_\chi\partial_\beta\partial^\chi\tau\,(\Delta+\mathcal{K})^{\beta\chi} == \partial_\chi\partial^\chi\partial_\beta\tau\,(\Delta+\mathcal{K})^{\alpha\beta} + 2\,\partial_\chi\partial^\delta\partial_\chi\partial_\beta\sigma^{\beta\alpha\chi}$	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
$1^+\tau^\parallel{}^{\alpha\beta} == 0$	$\partial_\chi\partial^\alpha\tau\,(\Delta+\mathcal{K})^{\beta\chi} + \partial_\chi\partial^\beta\tau\,(\Delta+\mathcal{K})^{\chi\alpha} + \partial_\chi\partial^\chi\tau\,(\Delta+\mathcal{K})^{\alpha\beta} == \partial_\chi\partial^\alpha\tau\,(\Delta+\mathcal{K})^{\chi\beta} + \partial_\chi\partial^\beta\tau\,(\Delta+\mathcal{K})^{\alpha\chi} + \partial_\chi\partial^\chi\tau\,(\Delta+\mathcal{K})^{\beta\alpha}$	3
$1^+\sigma^\perp{}^{\alpha\beta} == 0$	$\partial_\delta\partial_\chi\partial^\alpha\sigma^{\chi\beta\delta} + \partial_\delta\partial^\delta\partial_\chi\sigma^{\chi\alpha\beta} == \partial_\delta\partial_\chi\partial^\beta\sigma^{\chi\alpha\delta}$	3
$2^-\sigma^\parallel{}^{\alpha\beta\chi} == 0$	$3\,\partial_\delta\partial_\chi\partial^\chi\partial^\alpha\sigma^{\delta\beta\epsilon} + 3\,\partial_\epsilon\partial^\chi\partial^\alpha\sigma^{\delta\beta}{}_\delta + 2\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\beta\sigma^{\alpha\chi\delta} + 4\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\beta\sigma^{\chi\alpha\delta} + 2\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\beta\sigma^{\delta\alpha\chi} + 2\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\chi\sigma^{\beta\alpha\delta} +$ $4\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\chi\sigma^{\delta\alpha\beta} + 2\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\delta\sigma^{\alpha\beta\chi} + 3\,\eta^{\beta\chi}\,\partial_\phi\partial^\phi\partial_\epsilon\partial_\delta\sigma^{\delta\beta\epsilon} + 3\,\eta^{\alpha\chi}\,\partial_\phi\partial^\phi\partial_\epsilon\partial_\delta\sigma^{\delta\beta\epsilon} + 3\,\eta^{\beta\chi}\,\partial_\phi\partial^\phi\partial_\epsilon\partial^\alpha\sigma^{\delta\epsilon}{}_\delta ==$ $3\,\partial_\delta\partial_\chi\partial^\beta\partial^\alpha\sigma^{\delta\alpha\epsilon} + 3\,\partial_\delta\partial^\epsilon\partial^\chi\partial^\beta\sigma^{\delta\alpha}{}_\delta + 2\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\alpha\sigma^{\chi\beta\delta} + 4\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\alpha\sigma^{\chi\beta\delta} + 2\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\alpha\sigma^{\delta\beta\chi} + 2\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\chi\sigma^{\alpha\beta\delta} +$ $2\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\delta\sigma^{\beta\alpha\chi} + 4\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\delta\sigma^{\chi\alpha\beta} + 3\,\eta^{\alpha\chi}\,\partial_\phi\partial^\phi\partial_\epsilon\partial_\delta\sigma^{\delta}{}_\delta + 3\,\eta^{\beta\chi}\,\partial_\phi\partial^\phi\partial_\epsilon\partial_\delta\sigma^{\delta\alpha\epsilon} + 3\,\eta^{\alpha\chi}\,\partial_\phi\partial^\phi\partial_\epsilon\partial^\epsilon\sigma^{\delta\beta}{}_\delta$	5
$2^+\tau^\parallel{}^{\alpha\beta} == 0$	$4\,\partial_\delta\partial_\chi\partial^\beta\partial^\alpha\tau\,(\Delta+\mathcal{K})^{\chi\delta} + 2\,\partial_\delta\partial^\delta\partial^\beta\partial^\alpha\tau\,(\Delta+\mathcal{K})^{\chi}{}_\chi + 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\chi\tau\,(\Delta+\mathcal{K})^{\alpha\beta} +$ $3\,\partial_\delta\partial^\delta\partial_\chi\partial^\chi\tau\,(\Delta+\mathcal{K})^{\beta\alpha} + 2\,\eta^{\alpha\beta}\,\partial_\delta\partial^\delta\partial_\chi\partial_\chi\tau\,(\Delta+\mathcal{K})^{\chi\delta} == 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\alpha\tau\,(\Delta+\mathcal{K})^{\beta\chi} +$ $3\,\partial_\delta\partial^\delta\partial_\chi\partial^\alpha\tau\,(\Delta+\mathcal{K})^{\chi\beta} + 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\beta\tau\,(\Delta+\mathcal{K})^{\alpha\chi} + 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\beta\tau\,(\Delta+\mathcal{K})^{\chi\alpha} + 2\,\eta^{\alpha\beta}\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\delta\tau\,(\Delta+\mathcal{K})^{\chi}{}_\chi$	5
Total expected gauge generators:		24

Massive spectrum

(No particles)

Massless spectrum

Massless particle

Pole residue:	$-\frac{26}{r_3} + \frac{39}{2r_3+r_5} - \frac{216}{r_3+2r_5} > 0$
Polarisations:	2

Unitarity conditions

$(r_3 < 0 \, \&\& \, (r_5 < -\frac{r_3}{2} \, || \, r_5 > -2r_3)) \, || \, (r_3 > 0 \, \&\& \, -2r_3 < r_5 < -\frac{r_3}{2})$