PSALTer results panel

$$\mathcal{S} == \iiiint \Big(\tfrac{1}{6}\big(-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} - 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} + 4 t_{3}\, \partial_{\iota} f^{\alpha\iota}\, \partial_{\theta} f_{\alpha}{}^{\theta} - 8 t_{3}\, \partial^{\iota} f^{\alpha}{}_{\alpha}\, \partial_{\theta} f_{\iota}{}^{\theta} + 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} - 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} + 4 t_{2}\, \mathcal{A}_{\iota\theta\alpha}\, \partial^{\theta} f^{\alpha\iota} + 2 t_{2}\, \partial_{\alpha} f_{\iota\theta}\, \partial^{\theta} f^{\alpha\iota} - t_{2}\, \partial_{\alpha} f_{\theta\iota}\, \partial^{\theta} f^{\alpha\iota} - t_{2}\, \partial_{\iota} f_{\alpha\theta}\, \partial^{\theta} f^{\alpha\iota} + t_{2}\, \partial_{\theta} f_{\alpha\iota}\, \partial^{\theta} f^{\alpha\iota} - t_{2}\, \partial_{\theta} f_{\iota\alpha}\, \partial^{\theta} f^{\alpha\iota} - 4 t_{2}\, \mathcal{A}_{\alpha\theta\iota}\, (\mathcal{A}^{\alpha\iota\theta} + \partial^{\theta} f^{\alpha\iota}) + 2 t_{2}\, \mathcal{A}_{\alpha\iota\theta}\, (\mathcal{A}^{\alpha\iota\theta} + 2\, \partial^{\theta} f^{\alpha\iota})\big)\Big)[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	$-i\sqrt{2}\,k t_3$	0	0
$0^+\,f^\parallel\,\dagger$	$i\sqrt{2}\,k t_3$	$2k^2 t_3$	0	0
$0^+\,f^\perp\,\dagger$	0	0	0	0
$0^-\,\mathcal{A}^\parallel\,\dagger$	0	0	0	$k^2 r_2 + t_2$

	$1^+\,\mathcal{A}^\parallel{}_{\alpha\beta}$	$1^+\,\mathcal{A}^\perp{}_{\alpha\beta}$	$1^+\,f^\parallel{}_{\alpha\beta}$	$1^-\,\mathcal{A}^\parallel{}_{\alpha}$	$1^-\,\mathcal{A}^\perp{}_{\alpha}$	$1^-\,f^\parallel{}_{\alpha}$	$1^-\,f^\perp{}_{\alpha}$
$1^+\,\mathcal{A}^\parallel\,\dagger^{\alpha\beta}$	$\frac{2t_2}{3}$	$\frac{\sqrt{2}\,t_2}{3}$	$\frac{1}{3}i\sqrt{2}\,k t_2$	0	0	0	0
$1^+\,\mathcal{A}^\perp\,\dagger^{\alpha\beta}$	$\frac{\sqrt{2}\,t_2}{3}$	$\frac{t_2}{3}$	$\frac{i k t_2}{3}$	0	0	0	0
$1^+\,f^\parallel\,\dagger^{\alpha\beta}$	$-\frac{1}{3}i\sqrt{2}\,k t_2$	$-\frac{1}{3}i k t_2$	$\frac{k^2 t_2}{3}$	0	0	0	0
$1^-\,\mathcal{A}^\parallel\,\dagger^{\alpha}$	0	0	0	$\frac{2t_3}{3}$	$-\frac{\sqrt{2}\,t_3}{3}$	0	$-\frac{2}{3}i k t_3$
$1^-\,\mathcal{A}^\perp\,\dagger^{\alpha}$	0	0	0	$-\frac{\sqrt{2}\,t_3}{3}$	$\frac{t_3}{3}$	0	$\frac{1}{3}i\sqrt{2}\,k t_3$
$1^-\,f^\parallel\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-\,f^\perp\,\dagger^{\alpha}$	0	0	0	$\frac{2 i k t_3}{3}$	$-\frac{1}{3}i\sqrt{2}\,k t_3$	0	$\frac{2k^2 t_3}{3}$

	$2^+\,\mathcal{A}^\parallel{}_{\alpha\beta}$	$2^+\,f^\parallel{}_{\alpha\beta}$	$2^-\,\mathcal{A}^\parallel{}_{\alpha\beta\chi}$
$2^+\,\mathcal{A}^\parallel\,\dagger^{\alpha\beta}$	0	0	0
$2^+\,f^\parallel\,\dagger^{\alpha\beta}$	0	0	0
$2^-\,\mathcal{A}^\parallel\,\dagger^{\alpha\beta\chi}$	0	0	0

Saturated propagator

	$0^+\,\sigma^\parallel$	$0^+\,\tau^\parallel$	$0^+\,\tau^\perp$	$0^-\,\sigma^\parallel$
$0^+\,\sigma^\parallel\,\dagger$	$\frac{1}{(1+2k^2)^2 t_3}$	$-\frac{i\sqrt{2}\,k}{(1+2k^2)^2 t_3}$	0	0
$0^+\,\tau^\parallel\,\dagger$	$\frac{i\sqrt{2}\,k}{(1+2k^2)^2 t_3}$	$\frac{2k^2}{(1+2k^2)^2 t_3}$	0	0
$0^+\,\tau^\perp\,\dagger$	0	0	0	0
$0^-\,\sigma^\parallel\,\dagger$	0	0	0	$\frac{1}{k^2 r_2 + t_2}$

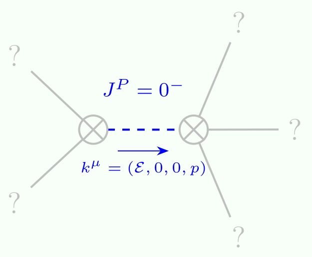
	$1^+\,\sigma^\parallel{}_{\alpha\beta}$	$1^+\,\sigma^\perp{}_{\alpha\beta}$	$1^+\,\tau^\parallel{}_{\alpha\beta}$	$1^-\,\sigma^\parallel{}_{\alpha}$	$1^-\,\sigma^\perp{}_{\alpha}$	$1^-\,\tau^\parallel{}_{\alpha}$	$1^-\,\tau^\perp{}_{\alpha}$
$1^+\,\sigma^\parallel\,\dagger^{\alpha\beta}$	$\frac{6}{(3+k^2)^2 t_2}$	$\frac{3\sqrt{2}}{(3+k^2)^2 t_2}$	$\frac{3i\sqrt{2}\,k}{(3+k^2)^2 t_2}$	0	0	0	0
$1^+\,\sigma^\perp\,\dagger^{\alpha\beta}$	$\frac{3\sqrt{2}}{(3+k^2)^2 t_2}$	$\frac{3}{(3+k^2)^2 t_2}$	$\frac{3ik}{(3+k^2)^2 t_2}$	0	0	0	0
$1^+\,\tau^\parallel\,\dagger^{\alpha\beta}$	$-\frac{3i\sqrt{2}\,k}{(3+k^2)^2 t_2}$	$-\frac{3ik}{(3+k^2)^2 t_2}$	$\frac{3k^2}{(3+k^2)^2 t_2}$	0	0	0	0
$1^-\,\sigma^\parallel\,\dagger^{\alpha}$	0	0	0	$\frac{6}{(3+2k^2)^2 t_3}$	$-\frac{3\sqrt{2}}{(3+2k^2)^2 t_3}$	0	$-\frac{6ik}{(3+2k^2)^2 t_3}$
$1^-\,\sigma^\perp\,\dagger^{\alpha}$	0	0	0	$-\frac{3\sqrt{2}}{(3+2k^2)^2 t_3}$	$\frac{3}{(3+2k^2)^2 t_3}$	0	$\frac{3i\sqrt{2}\,k}{(3+2k^2)^2 t_3}$
$1^-\,\tau^\parallel\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-\,\tau^\perp\,\dagger^{\alpha}$	0	0	0	$\frac{6ik}{(3+2k^2)^2 t_3}$	$-\frac{3i\sqrt{2}\,k}{(3+2k^2)^2 t_3}$	0	$\frac{6k^2}{(3+2k^2)^2 t_3}$

	$2^+\,\sigma^\parallel{}_{\alpha\beta}$	$2^+\,\tau^\parallel{}_{\alpha\beta}$	$2^-\,\sigma^\parallel{}_{\alpha\beta\chi}$
$2^+\,\sigma^\parallel\,\dagger^{\alpha\beta}$	0	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
$0^+\,\tau^\perp == 0$	$\partial_\beta\partial_\alpha\tau(\Delta+\mathcal{K})^{\alpha\beta} == 0$	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
$-ik\,1^-\,\sigma^{\parallel\alpha} + 1^-\,\tau^{\perp\alpha} == 0$	$\partial_\chi\partial_\beta\partial^\alpha\tau(\Delta+\mathcal{K})^{\beta\chi} + \partial_\delta\partial^\delta\partial_\chi\partial_\beta\sigma^{\beta\alpha\chi} == \partial_\chi\partial^\chi\partial_\beta\tau(\Delta+\mathcal{K})^{\alpha\beta} + \partial_\delta\partial^\delta\partial_\chi\partial^\alpha\sigma^{\beta}{}_{\beta}{}^{\chi} + \partial_\delta\partial^\delta\partial_\chi\partial^\chi\sigma^{\beta\alpha}{}_{\beta}$	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
$1^-\,\sigma^{\parallel\alpha} + 2\,1^-\,\sigma^{\perp\alpha} == 0$	$\partial_\chi\partial^\alpha\sigma^{\beta}{}_{\beta}{}^{\chi} + \partial_\chi\partial^\chi\sigma^{\beta\alpha}{}_{\beta} == 3\,\partial_\chi\partial_\beta\sigma^{\beta\alpha\chi}$	3
$ik\,1^+\,\sigma^{\parallel\alpha\beta} + 1^+\,\tau^{\parallel\alpha\beta} == 0$	$\partial_\chi\partial^\alpha\tau(\Delta+\mathcal{K})^{\beta\chi} + \partial_\chi\partial^\beta\tau(\Delta+\mathcal{K})^{\chi\alpha} + \partial_\chi\partial^\chi\tau(\Delta+\mathcal{K})^{\alpha\beta} + \partial_\delta\partial_\chi\partial^\beta\sigma^{\chi\alpha\delta} + \partial_\delta\partial^\delta\partial_\chi\sigma^{\alpha\beta\chi} == \partial_\chi\partial^\alpha\tau(\Delta+\mathcal{K})^{\chi\beta} + \partial_\chi\partial^\beta\tau(\Delta+\mathcal{K})^{\alpha\chi} + \partial_\chi\partial^\chi\tau(\Delta+\mathcal{K})^{\beta\alpha} + \partial_\delta\partial_\chi\partial^\alpha\sigma^{\chi\beta\delta} + \partial_\delta\partial^\delta\partial_\chi\sigma^{\beta\alpha\chi}$	3
$1^+\,\sigma^{\parallel\alpha\beta} == 1^+\,\sigma^{\perp\alpha\beta}$	$3\,\partial_\delta\partial_\chi\partial^\alpha\sigma^{\chi\beta\delta} + \partial_\delta\partial^\delta\partial_\chi\sigma^{\beta\alpha\chi} + 2\,\partial_\delta\partial^\delta\partial_\chi\sigma^{\chi\alpha\beta} == 3\,\partial_\delta\partial_\chi\partial^\beta\sigma^{\chi\alpha\delta} + \partial_\delta\partial^\delta\partial_\chi\sigma^{\alpha\beta\chi}$	3
$2^-\,\sigma^{\parallel\alpha\beta\chi} == 0$	$3\,\partial_\epsilon\partial_\delta\partial^\chi\partial^\alpha\sigma^{\delta\beta\epsilon} + 3\,\partial_\epsilon\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^\alpha\sigma^{\delta}{}_{\delta}{}^{\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^\epsilon\sigma^{\delta\alpha}{}_{\delta} == 3\,\partial_\epsilon\partial_\delta\partial^\chi\partial^\beta\sigma^{\delta\alpha\epsilon} + 3\,\partial_\epsilon\partial^\epsilon\partial^\chi\partial^\beta\sigma^{\delta\alpha}{}_{\delta} + 2\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\alpha\sigma^{\beta\chi\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^\beta\sigma^{\delta}{}_{\delta}{}^{\epsilon} + 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
$2^+\,\tau^{\parallel\alpha\beta} == 0$	$4\,\partial_\delta\partial_\chi\partial^\beta\partial^\alpha\tau(\Delta+\mathcal{K})^{\chi\delta} + 2\,\partial_\delta\partial^\delta\partial^\beta\partial^\alpha\tau(\Delta+\mathcal{K})^{\chi}{}_{\chi} + 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\chi\tau(\Delta+\mathcal{K})^{\alpha\beta} + 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\chi\tau(\Delta+\mathcal{K})^{\beta\alpha} + 2\,\eta^{\alpha\beta}\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial_\chi\tau(\Delta+\mathcal{K})^{\chi\delta} == 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\alpha\tau(\Delta+\mathcal{K})^{\beta\chi} + 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\alpha\tau(\Delta+\mathcal{K})^{\chi\beta} + 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\beta\tau(\Delta+\mathcal{K})^{\alpha\chi} + 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\beta\tau(\Delta+\mathcal{K})^{\chi\alpha} + 2\,\eta^{\alpha\beta}\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\delta\tau(\Delta+\mathcal{K})^{\chi}{}_{\chi}$	5
$2^+\,\sigma^{\parallel\alpha\beta} == 0$	$3\,\partial_\delta\partial_\chi\partial^\alpha\sigma^{\chi\beta\delta} + 3\,\partial_\delta\partial_\chi\partial^\beta\sigma^{\chi\alpha\delta} + 2\,\eta^{\alpha\beta}\,\partial_\epsilon\partial^\epsilon\partial_\delta\sigma^{\chi}{}_{\chi}{}^{\delta} == 2\,\partial_\delta\partial^\beta\partial^\alpha\sigma^{\chi}{}_{\chi}{}^{\delta} + 3\,(\partial_\delta\partial^\delta\partial_\chi\sigma^{\alpha\beta\chi} + \partial_\delta\partial^\delta\partial_\chi\sigma^{\beta\alpha\chi})$	5
Total expected gauge generators:		32

Massive spectrum



Massive particle

Pole residue:	$-\frac{1}{r_2} > 0$
Square mass:	$-\frac{t_2}{r_2} > 0$
Spin:	0
Parity:	Odd

Massless spectrum

(No particles)

Unitarity conditions

$r_2 < 0\ \&\&\ t_2 > 0$