PSALTer results panel

$S =$

$\iiiint \Big(\frac{1}{6} \big(6\, \mathcal{A}^{\alpha\beta\chi}{}_{} \sigma_{\alpha\beta\chi} + 6\, f^{\alpha\beta}{}_{\tau} (\Delta+\mathcal{K})_{\alpha\beta} - 15\, r_3\, \partial_\beta \mathcal{A}_{\iota}{}^{\theta}{}_{\theta} \partial^\iota \mathcal{A}^{\alpha\beta}{}_{\alpha} + 9\, r_3\, \partial_\iota \mathcal{A}_{\beta}{}^{\theta}{}_{\theta} \partial^\iota \mathcal{A}^{\alpha\beta}{}_{\alpha} + 9\, r_3\, \partial_\alpha \mathcal{A}^{\alpha\beta\iota} \partial_\theta \mathcal{A}_{\beta}{}^{\theta}{}_{\iota} - 18\, r_3$

$\partial^\iota \mathcal{A}^{\alpha\beta}{}_{\alpha} \partial_\theta \mathcal{A}_{\beta}{}^{\theta}{}_{\iota} - 15\, r_3\, \partial_\alpha \mathcal{A}^{\alpha\beta\iota} \partial_\theta \mathcal{A}_{\beta}{}^{\theta}{}_{\iota} + 30\, r_3\, \partial^\iota \mathcal{A}^{\alpha\beta}{}_{\alpha} \partial_\theta \mathcal{A}_{\iota}{}^{\theta}{}_{\beta} + 8\, r_2\, \partial_\beta \mathcal{A}_{\alpha\iota\theta} \partial^\theta \mathcal{A}^{\alpha\beta\iota} -$

$4\, r_2\, \partial_\beta \mathcal{A}_{\alpha\theta\iota} \partial^\theta \mathcal{A}^{\alpha\beta\iota} + 4\, r_2\, \partial_\beta \mathcal{A}_{\iota\theta\alpha} \partial^\theta \mathcal{A}^{\alpha\beta\iota} - 24\, r_3\, \partial_\beta \mathcal{A}_{\iota\theta\alpha} \partial^\theta \mathcal{A}^{\alpha\beta\iota} - 2\, r_2\, \partial_\iota \mathcal{A}_{\alpha\beta\theta} \partial^\theta \mathcal{A}^{\alpha\beta\iota} +$

$2\, r_2\, \partial_\theta \mathcal{A}_{\alpha\beta\iota} \partial^\theta \mathcal{A}^{\alpha\beta\iota} - 4\, r_2\, \partial_\theta \mathcal{A}_{\alpha\iota\beta} \partial^\theta \mathcal{A}^{\alpha\beta\iota} + 4\, t_2\, \mathcal{A}_{\iota\theta\alpha} \partial^\theta f^{\alpha\iota} + 2\, t_2\, \partial_\alpha f_{\iota\theta} \partial^\theta f^{\alpha\iota} -$

$t_2\, \partial_\alpha f_{\theta\iota} \partial^\theta f^{\alpha\iota} - t_2\, \partial_\iota f_{\alpha\theta} \partial^\theta f^{\alpha\iota} + t_2\, \partial_\theta f_{\alpha\iota} \partial^\theta f^{\alpha\iota} - t_2\, \partial_\theta f_{\iota\alpha} \partial^\theta f^{\alpha\iota} -$

$4\, t_2\, \mathcal{A}_{\alpha\theta\iota} \big(\mathcal{A}^{\alpha\iota\theta} + \partial^\theta f^{\alpha\iota} \big) + 2\, t_2\, \mathcal{A}_{\alpha\iota\theta} \big(\mathcal{A}^{\alpha\iota\theta} + 2\, \partial^\theta f^{\alpha\iota} \big) \big) \Big) [t, x, y, z]\, dz\, dy\, dx\, dt$

Wave operator

	$\overset{0^+}{.}\mathcal{A}^{\|}$ †	$\overset{0^+}{.}f^{\|}$ †	$\overset{0^+}{.}f^{\perp}$ †	$\overset{0^-}{.}\mathcal{A}^{\|}$
$\overset{0^+}{.}\mathcal{A}^{\|}$ †	0	0	0	0
$\overset{0^+}{.}f^{\|}$ †	0	0	0	0
$\overset{0^+}{.}f^{\perp}$ †	0	0	0	0
$\overset{0^-}{.}\mathcal{A}^{\|}$ †	0	0	0	$k^2 r_3 + t_2$

	$\overset{1^+}{.}\mathcal{A}^{\|}{}_{\alpha\beta}$	$\overset{1^+}{.}\mathcal{A}^{\perp}{}_{\alpha\beta}$	$\overset{1^+}{.}f^{\|}{}_{\alpha\beta}$	$\overset{1^-}{.}\mathcal{A}^{\|}{}_{\alpha}$	$\overset{1^-}{.}\mathcal{A}^{\perp}{}_{\alpha}$	$\overset{1^-}{.}f^{\|}{}_{\alpha}$	$\overset{1^-}{.}f^{\perp}{}_{\alpha}$
$\overset{1^+}{.}\mathcal{A}^{\|}$ †$^{\alpha\beta}$	$\frac{2 t_2}{3}$	$\frac{\sqrt{2}\, t_2}{3}$	$\frac{1}{3} i \sqrt{2}\, k t_2$	0	0	0	0
$\overset{1^+}{.}\mathcal{A}^{\perp}$ †$^{\alpha\beta}$	$\frac{\sqrt{2}\, t_2}{3}$	$\frac{t_2}{3}$	$\frac{i k t_2}{3}$	0	0	0	0
$\overset{1^+}{.}f^{\|}$ †$^{\alpha\beta}$	$-\frac{1}{3} i \sqrt{2}\, k t_2$	$-\frac{1}{3} i k t_2$	$\frac{k^2 t_2}{3}$	0	0	0	0
$\overset{1^-}{.}\mathcal{A}^{\|}$ †$^{\alpha}$	0	0	0	$-\frac{3 k^2 r_3}{2}$	0	0	0
$\overset{1^-}{.}\mathcal{A}^{\perp}$ †$^{\alpha}$	0	0	0	0	0	0	0
$\overset{1^-}{.}f^{\|}$ †$^{\alpha}$	0	0	0	0	0	0	0
$\overset{1^-}{.}f^{\perp}$ †$^{\alpha}$	0	0	0	0	0	0	0

	$\overset{2^+}{.}\mathcal{A}^{\|}{}_{\alpha\beta}$	$\overset{2^+}{.}f^{\|}{}_{\alpha\beta}$	$\overset{2^-}{.}\mathcal{A}^{\|}{}_{\alpha\beta\chi}$
$\overset{2^+}{.}\mathcal{A}^{\|}$ †$^{\alpha\beta}$	$-\frac{3 k^2 r_3}{2}$	0	0
$\overset{2^+}{.}f^{\|}$ †$^{\alpha\beta}$	0	0	0
$\overset{2^-}{.}\mathcal{A}^{\|}$ †$^{\alpha\beta\chi}$	0	0	0

Saturated propagator

	$\overset{0^+}{.}\sigma^{\|}$ †	$\overset{0^+}{.}\tau^{\|}$ †	$\overset{0^+}{.}\tau^{\perp}$ †	$\overset{0^-}{.}\sigma^{\|}$
$\overset{0^+}{.}\sigma^{\|}$ †	0	0	0	0
$\overset{0^+}{.}\tau^{\|}$ †	0	0	0	0
$\overset{0^+}{.}\tau^{\perp}$ †	0	0	0	0
$\overset{0^-}{.}\sigma^{\|}$ †	0	0	0	$\frac{1}{k^2 r_3 + t_2}$

	$\overset{1^+}{.}\sigma^{\|}{}_{\alpha\beta}$	$\overset{1^+}{.}\sigma^{\perp}{}_{\alpha\beta}$	$\overset{1^+}{.}\tau^{\|}{}_{\alpha\beta}$	$\overset{1^-}{.}\sigma^{\|}{}_{\alpha}$	$\overset{1^-}{.}\sigma^{\perp}{}_{\alpha}$	$\overset{1^-}{.}\tau^{\|}{}_{\alpha}$	$\overset{1^-}{.}\tau^{\perp}{}_{\alpha}$
$\overset{1^+}{.}\sigma^{\|}$ †$^{\alpha\beta}$	$\frac{6}{(3+k^2)^2 t_2}$	$\frac{3\sqrt{2}}{(3+k^2)^2 t_2}$	$\frac{3 i \sqrt{2}\, k}{(3+k^2)^2 t_2}$	0	0	0	0
$\overset{1^+}{.}\sigma^{\perp}$ †$^{\alpha\beta}$	$\frac{3\sqrt{2}}{(3+k^2)^2 t_2}$	$\frac{3}{(3+k^2)^2 t_2}$	$\frac{3 i k}{(3+k^2)^2 t_2}$	0	0	0	0
$\overset{1^+}{.}\tau^{\|}$ †$^{\alpha\beta}$	$\frac{3 i \sqrt{2}\, k}{(3+k^2)^2 t_2}$	$-\frac{3 i k}{(3+k^2)^2 t_2}$	$\frac{3 k^2}{(3+k^2)^2 t_2}$	0	0	0	0
$\overset{1^-}{.}\sigma^{\|}$ †$^{\alpha}$	0	0	0	$-\frac{2}{3 k^2 r_3}$	0	0	0
$\overset{1^-}{.}\sigma^{\perp}$ †$^{\alpha}$	0	0	0	0	0	0	0
$\overset{1^-}{.}\tau^{\|}$ †$^{\alpha}$	0	0	0	0	0	0	0
$\overset{1^-}{.}\tau^{\perp}$ †$^{\alpha}$	0	0	0	0	0	0	0

	$\overset{2^+}{.}\sigma^{\|}{}_{\alpha\beta}$	$\overset{2^+}{.}\tau^{\|}{}_{\alpha\beta}$	$\overset{2^-}{.}\sigma^{\|}{}_{\alpha\beta\chi}$
$\overset{2^+}{.}\sigma^{\|}$ †$^{\alpha\beta}$	$-\frac{2}{3 k^2 r_3}$	0	0
$\overset{2^+}{.}\tau^{\|}$ †$^{\alpha\beta}$	0	0	0
$\overset{2^-}{.}\sigma^{\|}$ †$^{\alpha\beta\chi}$	0	0	0

Source constraints

Spin-parity form	Covariant form	Multiplicities
$\overset{0^+}{.}\tau^{\perp} == 0$	$\partial_\beta \partial_\alpha \tau (\Delta+\mathcal{K})^{\alpha\beta} == 0$	1
$\overset{0^+}{.}\tau^{\|} == 0$	$\partial_\beta \partial_\alpha \tau (\Delta+\mathcal{K})^{\alpha\beta} == \partial_\beta \partial^\beta \tau (\Delta+\mathcal{K})^{\alpha}{}_{\alpha}$	1
$\overset{0^+}{.}\sigma^{\|} == 0$	$\partial_\beta \sigma^{\alpha}{}_{\alpha}{}^{\beta} == 0$	1
$\overset{1^-}{.}\tau^{\perp\alpha} == 0$	$\partial_\chi \partial_\beta \partial^\alpha \tau (\Delta+\mathcal{K})^{\beta\chi} == \partial_\chi \partial^\chi \partial_\beta \tau (\Delta+\mathcal{K})^{\alpha\beta}$	3
$\overset{1^-}{.}\tau^{\|\alpha} == 0$	$\partial_\chi \partial_\beta \partial^\alpha \tau (\Delta+\mathcal{K})^{\beta\chi} == \partial_\chi \partial^\chi \partial_\beta \tau (\Delta+\mathcal{K})^{\beta\alpha}$	3
$\overset{1^-}{.}\sigma^{\perp\alpha} == 0$	$\partial_\chi \partial_\beta \sigma^{\beta\alpha\chi} == 0$	3
$i k\ \overset{1^+}{.}\sigma^{\|\alpha\beta} + \overset{1^+}{.}\tau^{\|\alpha\beta} == 0$	$\partial_\chi \partial^\alpha \tau (\Delta+\mathcal{K})^{\beta\chi} + \partial_\chi \partial^\beta \tau (\Delta+\mathcal{K})^{\chi\alpha} + \partial_\chi \partial^\chi \tau (\Delta+\mathcal{K})^{\alpha\beta} + \partial_\delta \partial_\chi \partial^\beta \sigma^{\chi\alpha\delta} + \partial_\delta \partial^\delta \partial_\chi \sigma^{\alpha\beta\chi} == \partial_\chi \partial^\alpha \tau (\Delta+\mathcal{K})^{\chi\beta} + \partial_\chi \partial^\beta \tau (\Delta+\mathcal{K})^{\alpha\chi} + \partial_\chi \partial^\chi \tau (\Delta+\mathcal{K})^{\beta\alpha} + \partial_\delta \partial_\chi \partial^\alpha \sigma^{\chi\beta\delta} + \partial_\delta \partial^\delta \partial_\chi \sigma^{\beta\alpha\chi}$	3
$\overset{1^+}{.}\tau^{\|\alpha\beta} == \overset{1^+}{.}\sigma^{\perp\alpha\beta}$	$3 \partial_\delta \partial_\chi \partial^\alpha \sigma^{\chi\beta\delta} + \partial_\delta \partial^\delta \partial_\chi \sigma^{\beta\alpha\chi} + 2 \partial_\delta \partial^\delta \partial_\chi \sigma^{\chi\alpha\beta} == 3 \partial_\delta \partial_\chi \partial^\beta \sigma^{\chi\alpha\delta} + \partial_\delta \partial^\delta \partial_\chi \sigma^{\alpha\beta\chi}$	3
$\overset{2^-}{.}\sigma^{\|\alpha\beta\chi} == 0$	$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^\chi \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_\alpha \sigma^{\delta\alpha\epsilon} + 3 \partial_\epsilon \partial^\epsilon \partial^\chi \eta^{\beta\chi} \partial_\alpha \sigma^{\delta\alpha}{}_{\delta} + 2 \partial_\epsilon \partial^\epsilon \partial_\delta \partial^\chi \sigma^{\beta\chi\delta} + 4 \partial_\epsilon \partial^\epsilon \partial_\delta \partial^\chi \sigma^{\chi\beta\delta} + 2 \partial_\epsilon \partial^\epsilon \partial_\delta \partial^\chi \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^\chi \sigma^{\beta\alpha\chi} + 4 \partial_\epsilon \partial^\epsilon \partial_\delta \partial^\chi \sigma^{\chi\alpha\delta} + 3 \eta^{\alpha\chi} \partial_\phi \partial^\phi \partial_\epsilon \partial^\epsilon \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
$\overset{2^+}{.}\tau^{\|\alpha\beta} == 0$	$4 \partial_\delta \partial_\chi \partial^\alpha \partial_\alpha \tau (\Delta+\mathcal{K})^{\chi\delta} + 2 \partial_\delta \partial^\delta \partial^\beta \partial_\alpha \tau (\Delta+\mathcal{K})^{\alpha}{}_{\chi} + 3 \partial_\delta \partial^\delta \partial_\chi \partial^\chi \tau (\Delta+\mathcal{K})^{\alpha\beta} + 3 \partial_\delta \partial^\delta \partial_\chi \partial^\chi \tau (\Delta+\mathcal{K})^{\beta\alpha} + 2 \eta^{\alpha\beta} \partial_\epsilon \partial^\epsilon \partial_\delta \partial_\chi \tau (\Delta+\mathcal{K})^{\chi\delta} == 3 \partial_\delta \partial^\delta \partial_\chi \partial^\chi \tau (\Delta+\mathcal{K})^{\beta\chi} + 3 \partial_\delta \partial^\delta \partial_\chi \partial^\alpha \tau (\Delta+\mathcal{K})^{\chi\beta} + 3 \partial_\delta \partial^\delta \partial^\beta \partial_\chi \tau (\Delta+\mathcal{K})^{\alpha\chi} + 3 \partial_\delta \partial^\delta \partial_\chi \partial^\chi \tau (\Delta+\mathcal{K})^{\chi\alpha} + 2 \eta^{\alpha\beta} \partial_\epsilon \partial^\epsilon \partial_\delta \partial^\delta \tau (\Delta+\mathcal{K})^{\chi}{}_{\chi}$	5
Total expected gauge generators:		28

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

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