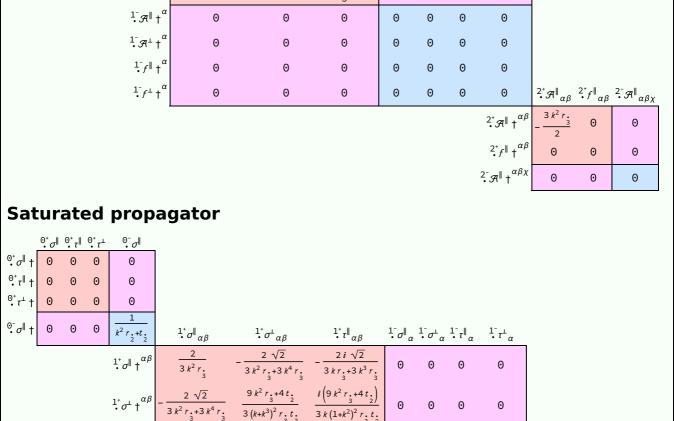## PSALTer results panel

$$\mathcal{S} = \iiiint \Big(\frac{1}{6} \Big(6 \, \mathcal{A}^{\alpha\beta\chi} \, \sigma_{\alpha\beta\chi} + 6 \, f^{\alpha\beta} \, \tau \, (\Delta+\mathcal{K})_{\alpha\beta} - 6 \, r_{\underset{3}{.}} \, \partial_{\beta}\mathcal{A}^{\theta}_{\,\,\,i}{}_{\theta} \, \partial^{i}\mathcal{A}^{\alpha\beta}{}_{\alpha} - 6 \, r_{\underset{3}{.}} \, \partial_{\alpha}\mathcal{A}^{\alpha\beta i} \, \partial_{\beta}\mathcal{A}^{\,\,\theta}_{i}{}_{\beta} + 12 \, r_{\underset{3}{.}} \, \partial^{i}\mathcal{A}^{\alpha\beta}{}_{\alpha} \, \partial_{\beta}\mathcal{A}^{\,\,\theta}_{i}{}_{\beta} +$$
$$8 \, r_{\underset{3}{.}} \, \partial_{\beta}\mathcal{A}_{\alpha i \theta} \, \partial^{\theta}\mathcal{A}^{\alpha\beta i} - 4 \, r_{\underset{3}{.}} \, \partial_{\beta}\mathcal{A}_{\alpha\theta i} \, \partial^{\theta}\mathcal{A}^{\alpha\beta i} + 4 \, r_{\underset{3}{.}} \, \partial_{\beta}\mathcal{A}_{i\theta\alpha} \, \partial^{\theta}\mathcal{A}^{\alpha\beta i} - 24 \, r_{\underset{3}{.}} \, \partial_{\beta}\mathcal{A}_{i\theta\alpha} \, \partial^{\theta}\mathcal{A}^{\alpha\beta i} -$$
$$2 \, r_{\underset{2}{.}} \, \partial_{i}\mathcal{A}_{\alpha\beta\theta} \, \partial^{\theta}\mathcal{A}^{\alpha\beta i} + 2 \, r_{\underset{2}{.}} \, \partial_{\theta}\mathcal{A}_{\alpha\beta i} \, \partial^{\theta}\mathcal{A}^{\alpha\beta i} - 4 \, r_{\underset{2}{.}} \, \partial_{\theta}\mathcal{A}_{\alpha i \beta} \, \partial^{\theta}\mathcal{A}^{\alpha\beta i} + 4 \, t_{\underset{2}{.}} \, \mathcal{A}_{i\theta\alpha} \, \partial^{\theta}f^{\alpha i} +$$
$$2 \, t_{\underset{2}{.}} \, \partial_{\alpha}f_{i\theta} \, \partial^{\theta}f^{\alpha i} - t_{\underset{2}{.}} \, \partial_{\alpha}f_{\theta i} \, \partial^{\theta}f^{\alpha i} - t_{\underset{2}{.}} \, \partial_{i}f_{\alpha\theta} \, \partial^{\theta}f^{\alpha i} + t_{\underset{2}{.}} \, \partial_{\theta}f_{\alpha i} \, \partial^{\theta}f^{\alpha i} - t_{\underset{2}{.}} \, \partial_{\theta}f_{i\alpha} \, \partial^{\theta}f^{\alpha i} -$$
$$4 \, t_{\underset{2}{.}} \, \mathcal{A}_{\alpha\theta i} \Big(\mathcal{A}^{\alpha i \theta} + \partial^{\theta}f^{\alpha i} \Big) + 2 \, t_{\underset{2}{.}} \, \mathcal{A}_{\alpha i \theta} \Big(\mathcal{A}^{\alpha i \theta} + 2 \, \partial^{\theta}f^{\alpha i} \Big) \Big) \Big) [t, \, x, \, y, \, z] \, dz \, dy \, dx \, dt$$

Wave operator

Saturated propagator

Source constraints

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

Massive spectrum

Massive particle

Pole residue:	$-\dfrac{1}{r_{\underset{2}{.}}} > 0$
Square mass:	$-\dfrac{t_{\underset{2}{.}}}{r_{\underset{2}{.}}} > 0$
Spin:	0
Parity:	Odd

Massless spectrum

(No particles)

Unitarity conditions

$r_{\underset{2}{.}} < 0 \, \&\& \, t_{\underset{2}{.}} > 0$