PSALTer results panel

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

Wave operator

$$\begin{array}{c|ccc|c|}
 & {}^{0^+}_{\bullet}\mathcal{A}^{\parallel} & {}^{0^+}_{\bullet}f^{\parallel} & {}^{0^+}_{\bullet}f^{\perp} & {}^{0^-}_{\bullet}\mathcal{A}^{\parallel} \\ \hline
{}^{0^+}_{\bullet}\mathcal{A}^{\parallel}\,\dagger & 0 & 0 & 0 & 0 \\
{}^{0^+}_{\bullet}f^{\parallel}\,\dagger & 0 & 0 & 0 & 0 \\
{}^{0^+}_{\bullet}f^{\perp}\,\dagger & 0 & 0 & 0 & 0 \\ \hline
{}^{0^-}_{\bullet}\mathcal{A}^{\parallel}\,\dagger & 0 & 0 & 0 & k^2 r_{2} + t_{2} \\ \hline
\end{array}$$

$$\begin{array}{c|ccc|cccc|}
 & {}^{1^+}_{\bullet}\mathcal{A}^{\parallel}{}_{\alpha\beta} & {}^{1^+}_{\bullet}\mathcal{A}^{\perp}{}_{\alpha\beta} & {}^{1^+}_{\bullet}f^{\parallel}{}_{\alpha\beta} & {}^{1^-}_{\bullet}\mathcal{A}^{\parallel}{}_{\alpha} & {}^{1^-}_{\bullet}\mathcal{A}^{\perp}{}_{\alpha} & {}^{1^-}_{\bullet}f^{\parallel}{}_{\alpha} & {}^{1^-}_{\bullet}f^{\perp}{}_{\alpha} \\ \hline
{}^{1^+}_{\bullet}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta} & \frac{2 t_{2}}{3} & \frac{\sqrt{2}\, t_{2}}{3} & \frac{1}{3} i \sqrt{2}\, k t_{2} & 0 & 0 & 0 & 0 \\
{}^{1^+}_{\bullet}\mathcal{A}^{\perp}\,\dagger^{\alpha\beta} & \frac{\sqrt{2}\, t_{2}}{3} & \frac{t_{2}}{3} & \frac{i k t_{2}}{3} & 0 & 0 & 0 & 0 \\
{}^{1^+}_{\bullet}f^{\parallel}\,\dagger^{\alpha\beta} & -\frac{1}{3} i \sqrt{2}\, k t_{2} & -\frac{1}{3} i k t_{2} & \frac{k^2 t_{2}}{3} & 0 & 0 & 0 & 0 \\ \hline
{}^{1^-}_{\bullet}\mathcal{A}^{\parallel}\,\dagger^{\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
{}^{1^-}_{\bullet}\mathcal{A}^{\perp}\,\dagger^{\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
{}^{1^-}_{\bullet}f^{\parallel}\,\dagger^{\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
{}^{1^-}_{\bullet}f^{\perp}\,\dagger^{\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline
\end{array}$$

$$\begin{array}{c|cc|c|}
 & {}^{2^+}_{\bullet}\mathcal{A}^{\parallel}{}_{\alpha\beta} & {}^{2^+}_{\bullet}f^{\parallel}{}_{\alpha\beta} & {}^{2^-}_{\bullet}\mathcal{A}^{\parallel}{}_{\alpha\beta\chi} \\ \hline
{}^{2^+}_{\bullet}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta} & 0 & 0 & 0 \\
{}^{2^+}_{\bullet}f^{\parallel}\,\dagger^{\alpha\beta} & 0 & 0 & 0 \\ \hline
{}^{2^-}_{\bullet}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta\chi} & 0 & 0 & 0 \\ \hline
\end{array}$$

Saturated propagator

$$\begin{array}{c|ccc|c|}
 & {}^{0^+}_{\bullet}\sigma^{\parallel} & {}^{0^+}_{\bullet}\tau^{\parallel} & {}^{0^+}_{\bullet}\tau^{\perp} & {}^{0^-}_{\bullet}\sigma^{\parallel} \\ \hline
{}^{0^+}_{\bullet}\sigma^{\parallel}\,\dagger & 0 & 0 & 0 & 0 \\
{}^{0^+}_{\bullet}\tau^{\parallel}\,\dagger & 0 & 0 & 0 & 0 \\
{}^{0^+}_{\bullet}\tau^{\perp}\,\dagger & 0 & 0 & 0 & 0 \\ \hline
{}^{0^-}_{\bullet}\sigma^{\parallel}\,\dagger & 0 & 0 & 0 & \frac{1}{k^2 r_{2} + t_{2}} \\ \hline
\end{array}$$

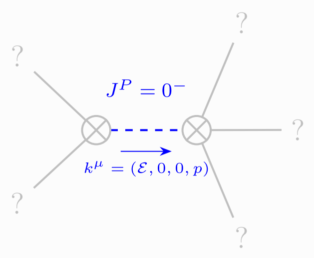
$$\begin{array}{c|ccc|cccc|}
 & {}^{1^+}_{\bullet}\sigma^{\parallel}{}_{\alpha\beta} & {}^{1^+}_{\bullet}\sigma^{\perp}{}_{\alpha\beta} & {}^{1^+}_{\bullet}\tau^{\parallel}{}_{\alpha\beta} & {}^{1^-}_{\bullet}\sigma^{\parallel}{}_{\alpha} & {}^{1^-}_{\bullet}\sigma^{\perp}{}_{\alpha} & {}^{1^-}_{\bullet}\tau^{\parallel}{}_{\alpha} & {}^{1^-}_{\bullet}\tau^{\perp}{}_{\alpha} \\ \hline
{}^{1^+}_{\bullet}\sigma^{\parallel}\,\dagger^{\alpha\beta} & \frac{6}{(3+k^2)^2 t_{2}} & \frac{3\sqrt{2}}{(3+k^2)^2 t_{2}} & \frac{3 i \sqrt{2}\, k}{(3+k^2)^2 t_{2}} & 0 & 0 & 0 & 0 \\
{}^{1^+}_{\bullet}\sigma^{\perp}\,\dagger^{\alpha\beta} & \frac{3\sqrt{2}}{(3+k^2)^2 t_{2}} & \frac{3}{(3+k^2)^2 t_{2}} & \frac{3 i k}{(3+k^2)^2 t_{2}} & 0 & 0 & 0 & 0 \\
{}^{1^+}_{\bullet}\tau^{\parallel}\,\dagger^{\alpha\beta} & -\frac{3 i \sqrt{2}\, k}{(3+k^2)^2 t_{2}} & -\frac{3 i k}{(3+k^2)^2 t_{2}} & \frac{3 k^2}{(3+k^2)^2 t_{2}} & 0 & 0 & 0 & 0 \\ \hline
{}^{1^-}_{\bullet}\sigma^{\parallel}\,\dagger^{\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
{}^{1^-}_{\bullet}\sigma^{\perp}\,\dagger^{\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
{}^{1^-}_{\bullet}\tau^{\parallel}\,\dagger^{\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
{}^{1^-}_{\bullet}\tau^{\perp}\,\dagger^{\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline
\end{array}$$

$$\begin{array}{c|cc|c|}
 & {}^{2^+}_{\bullet}\sigma^{\parallel}{}_{\alpha\beta} & {}^{2^+}_{\bullet}\tau^{\parallel}{}_{\alpha\beta} & {}^{2^-}_{\bullet}\sigma^{\parallel}{}_{\alpha\beta\chi} \\ \hline
{}^{2^+}_{\bullet}\sigma^{\parallel}\,\dagger^{\alpha\beta} & 0 & 0 & 0 \\
{}^{2^+}_{\bullet}\tau^{\parallel}\,\dagger^{\alpha\beta} & 0 & 0 & 0 \\ \hline
{}^{2^-}_{\bullet}\sigma^{\parallel}\,\dagger^{\alpha\beta\chi} & 0 & 0 & 0 \\ \hline
\end{array}$$

Source constraints

Spin-parity form	Covariant form	Multiplicities
${}^{0^+}_{\bullet}\tau^{\perp} == 0$	$\partial_{\beta}\partial_{\alpha}\tau(\Delta+\mathcal{K})^{\alpha\beta} == 0$	1
${}^{0^+}_{\bullet}\tau^{\parallel} == 0$	$\partial_{\beta}\partial_{\alpha}\tau(\Delta+\mathcal{K})^{\alpha\beta} == \partial_{\beta}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\alpha}{}_{\alpha}$	1
${}^{0^+}_{\bullet}\sigma^{\parallel} == 0$	$\partial_{\beta}\sigma^{\alpha}{}_{\alpha}{}^{\beta} == 0$	1
${}^{1^-}_{\bullet}\tau^{\perp}{}^{\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau(\Delta+\mathcal{K})^{\alpha\beta}$	3
${}^{1^-}_{\bullet}\tau^{\parallel}{}^{\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau(\Delta+\mathcal{K})^{\beta\alpha}$	3
${}^{1^-}_{\bullet}\sigma^{\perp}{}^{\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\sigma^{\beta\alpha\chi} == 0$	3
${}^{1^-}_{\bullet}\sigma^{\parallel}{}^{\alpha} == 0$	$\partial_{\delta}\partial^{\alpha}\sigma^{\chi}{}_{\chi}{}^{\delta} + \partial_{\delta}\partial^{\delta}\sigma^{\chi\alpha}{}_{\chi} == \partial_{\delta}\partial_{\chi}\sigma^{\chi\alpha\delta}$	3
$i\,k\ {}^{1^+}_{\bullet}\sigma^{\parallel}{}^{\alpha\beta} + {}^{1^+}_{\bullet}\tau^{\parallel}{}^{\alpha\beta} == 0$	$\partial_{\chi}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\beta\chi} + \partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\chi\alpha} + \partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\alpha\beta} + \partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta} + \partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\alpha\beta\chi} ==$ $\partial_{\chi}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi\beta} + \partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\alpha\chi} + \partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\beta\alpha} + \partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta} + \partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\beta\alpha\chi}$	3
${}^{1^+}_{\bullet}\sigma^{\parallel}{}^{\alpha\beta} == {}^{1^+}_{\bullet}\sigma^{\perp}{}^{\alpha\beta}$	$3\,\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta} + \partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\beta\alpha\chi} + 2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\chi\alpha\beta} == 3\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta} + \partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\alpha\beta\chi}$	3
${}^{2^-}_{\bullet}\sigma^{\parallel}{}^{\alpha\beta\chi} == 0$	$3\,\partial_{\epsilon}\partial_{\delta}\partial^{\chi}\partial^{\alpha}\sigma^{\delta\beta\epsilon} + 3\,\partial_{\epsilon}\partial^{\epsilon}\partial^{\chi}\partial^{\alpha}\sigma^{\delta\beta}{}_{\delta} + 2\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\beta}\sigma^{\alpha\chi\delta} + 4\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\beta}\sigma^{\chi\alpha\delta} +$ $2\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\beta}\sigma^{\delta\alpha\chi} + 2\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\chi}\sigma^{\beta\alpha\delta} + 4\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\chi}\sigma^{\delta\alpha\beta} + 2\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\sigma^{\alpha\beta\chi} +$ $3\ \eta^{\beta\chi}\ \partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial^{\alpha}\sigma^{\delta}{}_{\delta}{}^{\epsilon} + 3\ \eta^{\alpha\chi}\ \partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial_{\delta}\sigma^{\delta\beta\epsilon} + 3\ \eta^{\beta\chi}\ \partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial^{\epsilon}\sigma^{\delta\alpha}{}_{\delta} ==$ $3\,\partial_{\epsilon}\partial_{\delta}\partial^{\chi}\partial^{\beta}\sigma^{\delta\alpha\epsilon} + 3\,\partial_{\epsilon}\partial^{\epsilon}\partial^{\chi}\partial^{\beta}\sigma^{\delta\alpha}{}_{\delta} + 2\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\alpha}\sigma^{\beta\chi\delta} + 4\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\alpha}\sigma^{\chi\beta\delta} +$ $2\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\alpha}\sigma^{\delta\beta\chi} + 2\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\chi}\sigma^{\alpha\beta\delta} + 2\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\sigma^{\beta\alpha\chi} + 4\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\sigma^{\chi\alpha\beta} +$ $3\ \eta^{\alpha\chi}\ \partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial^{\beta}\sigma^{\delta}{}_{\delta}{}^{\epsilon} + 3\ \eta^{\beta\chi}\ \partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial_{\delta}\sigma^{\delta\alpha\epsilon} + 3\ \eta^{\alpha\chi}\ \partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial^{\epsilon}\sigma^{\delta\beta}{}_{\delta}$	5
${}^{2^+}_{\bullet}\tau^{\parallel}{}^{\alpha\beta} == 0$	$4\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi\delta} + 2\,\partial_{\delta}\partial^{\delta}\partial^{\beta}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi}{}_{\chi} +$ $3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\alpha\beta} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\beta\alpha} + 2\ \eta^{\alpha\beta}\ \partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\tau(\Delta+\mathcal{K})^{\chi\delta} ==$ $3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\beta\chi} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi\beta} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\alpha\chi} +$ $3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\chi\alpha} + 2\ \eta^{\alpha\beta}\ \partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\tau(\Delta+\mathcal{K})^{\chi}{}_{\chi}$	5
${}^{2^+}_{\bullet}\sigma^{\parallel}{}^{\alpha\beta} == 0$	$3\,\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta} + 3\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta} + 2\ \eta^{\alpha\beta}\ \partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\sigma^{\chi}{}_{\chi}{}^{\delta} ==$ $2\,\partial_{\delta}\partial^{\beta}\partial^{\alpha}\sigma^{\chi}{}_{\chi}{}^{\delta} + 3\left(\partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\alpha\beta\chi} + \partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\beta\alpha\chi}\right)$	5
Total expected gauge generators:		36

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

(There are no massless particles)

Gauge symmetries

(Not yet implemented in PSALTer)

Unitarity conditions

$r_{2} < 0\ \&\&\ t_{2} > 0$

Validity assumptions

(Not yet implemented in PSALTer)