PSALTer results panel

$$
\begin{aligned}
\mathcal{S} ==& \iiiint\Big(\tfrac{1}{6}\Big(2\left(t_1-2t_3\right)\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}-4t_1\,\mathcal{A}_{\alpha}{}^{\theta}{}_{\theta}\,\partial_{\iota}f^{\alpha\iota}+8t_3\,\mathcal{A}_{\alpha}{}^{\theta}{}_{\theta}\,\partial_{\iota}f^{\alpha\iota}-6r_1\,\partial_{\beta}\mathcal{A}_{\iota}{}^{\theta}{}_{\theta}\,\partial^{\iota}\mathcal{A}^{\alpha\beta}{}_{\alpha}+6r_1\,\partial_{\iota}\mathcal{A}_{\beta}{}^{\theta}{}_{\theta}\,\partial^{\iota}\mathcal{A}^{\alpha\beta}{}_{\alpha}+4t_1\\
&\mathcal{A}_{\iota}{}^{\theta}{}_{\theta}\,\partial^{\iota}f^{\alpha}{}_{\alpha}-8t_3\,\mathcal{A}_{\iota}{}^{\theta}{}_{\theta}\,\partial^{\iota}f^{\alpha}{}_{\alpha}-2t_1\,\partial_{\iota}f^{\theta}{}_{\theta}\,\partial^{\iota}f^{\alpha}{}_{\alpha}+4t_3\,\partial_{\iota}f^{\theta}{}_{\theta}\,\partial^{\iota}f^{\alpha}{}_{\alpha}+6r_1\,\partial_{\alpha}\mathcal{A}^{\alpha\beta\iota}\,\partial_{\theta}\mathcal{A}_{\beta}{}^{\theta}{}_{\iota}-12r_1\,\partial^{\iota}\mathcal{A}^{\alpha\beta}{}_{\alpha}\,\partial_{\theta}\mathcal{A}_{\beta}{}^{\theta}{}_{\iota}-6r_1\,\partial_{\alpha}\mathcal{A}^{\alpha\beta\iota}\,\partial_{\theta}\mathcal{A}_{\iota}{}^{\theta}{}_{\beta}+\\
&12r_1\,\partial^{\iota}\mathcal{A}^{\alpha\beta}{}_{\alpha}\,\partial_{\theta}\mathcal{A}_{\iota}{}^{\theta}{}_{\beta}-2t_1\,\partial_{\iota}f^{\alpha\iota}\,\partial_{\theta}f_{\alpha}{}^{\theta}+4t_3\,\partial_{\iota}f^{\alpha\iota}\,\partial_{\theta}f_{\alpha}{}^{\theta}+4t_1\,\partial^{\iota}f^{\alpha}{}_{\alpha}\,\partial_{\theta}f_{\iota}{}^{\theta}-8t_3\,\partial^{\iota}f^{\alpha}{}_{\alpha}\,\partial_{\theta}f_{\iota}{}^{\theta}-8r_1\,\partial_{\beta}\mathcal{A}_{\alpha\iota\theta}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\iota}+\\
&4r_1\,\partial_{\beta}\mathcal{A}_{\alpha\theta\iota}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\iota}-16r_1\,\partial_{\beta}\mathcal{A}_{\iota\theta\alpha}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\iota}-4r_1\,\partial_{\iota}\mathcal{A}_{\alpha\beta\theta}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\iota}+4r_1\,\partial_{\theta}\mathcal{A}_{\alpha\beta\iota}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\iota}+4r_1\,\partial_{\theta}\mathcal{A}_{\alpha\iota\beta}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\iota}-6t_1\,\partial_{\alpha}f_{\iota\theta}\,\partial^{\theta}f^{\alpha\iota}-\\
&3t_1\,\partial_{\alpha}f_{\theta\iota}\,\partial^{\theta}f^{\alpha\iota}+3t_1\,\partial_{\iota}f_{\alpha\theta}\,\partial^{\theta}f^{\alpha\iota}+3t_1\,\partial_{\theta}f_{\alpha\iota}\,\partial^{\theta}f^{\alpha\iota}+3t_1\,\partial_{\theta}f_{\iota\alpha}\,\partial^{\theta}f^{\alpha\iota}+6t_1\,\mathcal{A}_{\alpha\theta\iota}\left(\mathcal{A}^{\alpha\iota\theta}+2\,\partial^{\theta}f^{\alpha\iota}\right)\Big)\Big)[t,x,y,z]\,dz\,dy\,dx\,dt
\end{aligned}
$$

Wave operator

$$
\begin{array}{c|cccc}
 & {}^{0^+}\mathcal{A}^{\parallel} & {}^{0^+}f^{\parallel} & {}^{0^+}f^{\perp} & {}^{0^-}\mathcal{A}^{\parallel} \\
\hline
{}^{0^+}\mathcal{A}^{\parallel}\,\dagger & t_3 & -i\sqrt{2}\,k\,t_3 & 0 & 0 \\
{}^{0^+}f^{\parallel}\,\dagger & i\sqrt{2}\,k\,t_3 & 2k^2t_3 & 0 & 0 \\
{}^{0^+}f^{\perp}\,\dagger & 0 & 0 & 0 & 0 \\
{}^{0^-}\mathcal{A}^{\parallel}\,\dagger & 0 & 0 & 0 & -t_1
\end{array}
$$

$$
\begin{array}{c|ccccccc}
 & {}^{1^+}\mathcal{A}^{\parallel}{}_{\alpha\beta} & {}^{1^+}\mathcal{A}^{\perp}{}_{\alpha\beta} & {}^{1^+}f^{\parallel}{}_{\alpha\beta} & {}^{1^-}\mathcal{A}^{\parallel}{}_{\alpha} & {}^{1^-}\mathcal{A}^{\perp}{}_{\alpha} & {}^{1^-}f^{\parallel}{}_{\alpha} & {}^{1^-}f^{\perp}{}_{\alpha} \\
\hline
{}^{1^+}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta} & k^2r_1-\frac{t_1}{2} & -\frac{t_1}{\sqrt{2}} & -\frac{i\,k\,t_1}{\sqrt{2}} & 0 & 0 & 0 & 0 \\
{}^{1^+}\mathcal{A}^{\perp}\,\dagger^{\alpha\beta} & -\frac{t_1}{\sqrt{2}} & 0 & 0 & 0 & 0 & 0 & 0 \\
{}^{1^+}f^{\parallel}\,\dagger^{\alpha\beta} & \frac{i\,k\,t_1}{\sqrt{2}} & 0 & 0 & 0 & 0 & 0 & 0 \\
{}^{1^-}\mathcal{A}^{\parallel}\,\dagger^{\alpha} & 0 & 0 & 0 & \frac{1}{6}\left(t_1+4t_3\right) & \frac{t_1-2t_3}{3\sqrt{2}} & 0 & \frac{1}{3}\,i\,k\left(t_1-2t_3\right) \\
{}^{1^-}\mathcal{A}^{\perp}\,\dagger^{\alpha} & 0 & 0 & 0 & \frac{t_1-2t_3}{3\sqrt{2}} & \frac{t_1+t_3}{3} & 0 & \frac{1}{3}\,i\sqrt{2}\,k\left(t_1+t_3\right) \\
{}^{1^-}f^{\parallel}\,\dagger^{\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
{}^{1^-}f^{\perp}\,\dagger^{\alpha} & 0 & 0 & 0 & -\frac{1}{3}\,i\,k\left(t_1-2t_3\right) & -\frac{1}{3}\,i\sqrt{2}\,k\left(t_1+t_3\right) & 0 & \frac{2}{3}k^2\left(t_1+t_3\right)
\end{array}
$$

$$
\begin{array}{c|ccc}
 & {}^{2^+}\mathcal{A}^{\parallel}{}_{\alpha\beta} & {}^{2^+}f^{\parallel}{}_{\alpha\beta} & {}^{2^-}\mathcal{A}^{\parallel}{}_{\alpha\beta\chi} \\
\hline
{}^{2^+}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta} & \frac{t_1}{2} & -\frac{i\,k\,t_1}{\sqrt{2}} & 0 \\
{}^{2^+}f^{\parallel}\,\dagger^{\alpha\beta} & \frac{i\,k\,t_1}{\sqrt{2}} & k^2t_1 & 0 \\
{}^{2^-}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta\chi} & 0 & 0 & k^2r_1+\frac{t_1}{2}
\end{array}
$$

Saturated propagator

$$
\begin{array}{c|cccc}
 & {}^{0^+}\sigma^{\parallel} & {}^{0^+}\tau^{\parallel} & {}^{0^+}\tau^{\perp} & {}^{0^-}\sigma^{\parallel} \\
\hline
{}^{0^+}\sigma^{\parallel}\,\dagger & \frac{1}{\left(1+2k^2\right)^2t_3} & -\frac{i\sqrt{2}\,k}{\left(1+2k^2\right)^2t_3} & 0 & 0 \\
{}^{0^+}\tau^{\parallel}\,\dagger & \frac{i\sqrt{2}\,k}{\left(1+2k^2\right)^2t_3} & \frac{2k^2}{\left(1+2k^2\right)^2t_3} & 0 & 0 \\
{}^{0^+}\tau^{\perp}\,\dagger & 0 & 0 & 0 & 0 \\
{}^{0^-}\sigma^{\parallel}\,\dagger & 0 & 0 & 0 & -\frac{1}{t_1}
\end{array}
$$

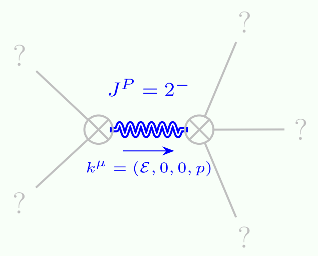
$$
\begin{array}{c|ccccccc}
 & {}^{1^+}\sigma^{\parallel}{}_{\alpha\beta} & {}^{1^+}\sigma^{\perp}{}_{\alpha\beta} & {}^{1^+}\tau^{\parallel}{}_{\alpha\beta} & {}^{1^-}\sigma^{\parallel}{}_{\alpha} & {}^{1^-}\sigma^{\perp}{}_{\alpha} & {}^{1^-}\tau^{\parallel}{}_{\alpha} & {}^{1^-}\tau^{\perp}{}_{\alpha} \\
\hline
{}^{1^+}\sigma^{\parallel}\,\dagger^{\alpha\beta} & 0 & -\frac{\sqrt{2}}{t_1+k^2t_1} & -\frac{i\sqrt{2}\,k}{t_1+k^2t_1} & 0 & 0 & 0 & 0 \\
{}^{1^+}\sigma^{\perp}\,\dagger^{\alpha\beta} & -\frac{\sqrt{2}}{t_1+k^2t_1} & \frac{-2k^2r_1+t_1}{\left(1+k^2\right)^2t_1^2} & -\frac{i\left(2k^3r_1-k\,t_1\right)}{\left(1+k^2\right)^2t_1^2} & 0 & 0 & 0 & 0 \\
{}^{1^+}\tau^{\parallel}\,\dagger^{\alpha\beta} & \frac{i\sqrt{2}\,k}{t_1+k^2t_1} & \frac{i\left(2k^3r_1-k\,t_1\right)}{\left(1+k^2\right)^2t_1^2} & \frac{-2k^4r_1+k^2t_1}{\left(1+k^2\right)^2t_1^2} & 0 & 0 & 0 & 0 \\
{}^{1^-}\sigma^{\parallel}\,\dagger^{\alpha} & 0 & 0 & 0 & \frac{2\left(t_1+t_3\right)}{3t_1t_3} & -\frac{\sqrt{2}\left(t_1-2t_3\right)}{3\left(1+2k^2\right)t_1t_3} & 0 & -\frac{2i\,k\,t_1-4i\,k\,t_3}{3t_1t_3+6k^2t_1t_3} \\
{}^{1^-}\sigma^{\perp}\,\dagger^{\alpha} & 0 & 0 & 0 & -\frac{\sqrt{2}\left(t_1-2t_3\right)}{3\left(1+2k^2\right)t_1t_3} & \frac{t_1+4t_3}{3\left(1+2k^2\right)^2t_1t_3} & 0 & \frac{i\sqrt{2}\,k\left(t_1+4t_3\right)}{3\left(1+2k^2\right)^2t_1t_3} \\
{}^{1^-}\tau^{\parallel}\,\dagger^{\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
{}^{1^-}\tau^{\perp}\,\dagger^{\alpha} & 0 & 0 & 0 & \frac{2i\,k\,t_1-4i\,k\,t_3}{3t_1t_3+6k^2t_1t_3} & -\frac{i\sqrt{2}\,k\left(t_1+4t_3\right)}{3\left(1+2k^2\right)^2t_1t_3} & 0 & \frac{2k^2\left(t_1+4t_3\right)}{3\left(1+2k^2\right)^2t_1t_3}
\end{array}
$$

$$
\begin{array}{c|ccc}
 & {}^{2^+}\sigma^{\parallel}{}_{\alpha\beta} & {}^{2^+}\tau^{\parallel}{}_{\alpha\beta} & {}^{2^-}\sigma^{\parallel}{}_{\alpha\beta\chi} \\
\hline
{}^{2^+}\sigma^{\parallel}\,\dagger^{\alpha\beta} & \frac{2}{\left(1+2k^2\right)^2t_1} & -\frac{2i\sqrt{2}\,k}{\left(1+2k^2\right)^2t_1} & 0 \\
{}^{2^+}\tau^{\parallel}\,\dagger^{\alpha\beta} & \frac{2i\sqrt{2}\,k}{\left(1+2k^2\right)^2t_1} & \frac{4k^2}{\left(1+2k^2\right)^2t_1} & 0 \\
{}^{2^-}\sigma^{\parallel}\,\dagger^{\alpha\beta\chi} & 0 & 0 & \frac{2}{2k^2r_1+t_1}
\end{array}
$$

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
$2ik\,{}^{1^-}\sigma^{\perp\alpha}+{}^{1^-}\tau^{\perp\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau(\Delta+\mathcal{K})^{\alpha\beta}+2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial_{\beta}\sigma^{\beta\alpha\chi}$	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
$ik\,{}^{1^+}\sigma^{\perp\alpha\beta}+{}^{1^+}\tau^{\parallel\alpha\beta} == 0$	$\partial_{\chi}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\beta\chi}+\partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\chi\alpha}+\partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\alpha\beta}+2\,\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta}+2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\chi\alpha\beta} ==$ $\partial_{\chi}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi\beta}+\partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\alpha\chi}+\partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\beta\alpha}+2\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta}$	3
$-2ik\,{}^{2^+}\sigma^{\parallel\alpha\beta}+{}^{2^+}\tau^{\parallel\alpha\beta} == 0$	$-i\big(4\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi\delta}+2\,\partial_{\delta}\partial^{\delta}\partial^{\beta}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi}{}_{\chi}-3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\beta\chi}-3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi\beta}-$ $3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\alpha\chi}-3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\chi\alpha}+3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\alpha\beta}+3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\beta\alpha}+$ $4i\,k^{\chi}\,\partial_{\epsilon}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\sigma^{\delta}{}_{\delta}{}^{\epsilon}-6i\,k^{\chi}\,\partial_{\epsilon}\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\delta\beta\epsilon}-6i\,k^{\chi}\,\partial_{\epsilon}\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\delta\alpha\epsilon}+6i\,k^{\chi}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\sigma^{\alpha\beta\delta}+$ $6i\,k^{\chi}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\sigma^{\beta\alpha\delta}+2\,\eta^{\alpha\beta}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\tau(\Delta+\mathcal{K})^{\chi\delta}-2\,\eta^{\alpha\beta}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\tau(\Delta+\mathcal{K})^{\chi}{}_{\chi}-4i\,\eta^{\alpha\beta}\,k^{\chi}\,\partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial_{\chi}\sigma^{\delta}{}_{\delta}{}^{\epsilon}\big) == 0$	5
Total expected gauge generators:		16

Massive spectrum



Massive particle

Pole residue:	$-\frac{1}{r_1} > 0$
Square mass:	$-\frac{t_1}{2r_1} > 0$
Spin:	2
Parity:	Odd

Massless spectrum

(No particles)

Unitarity conditions

$r_1 < 0\ \&\&\ t_1 > 0$