PSALTer results panel

$$\mathcal{S} == \iiiint (\rho\,\varphi + h^{\alpha\beta}\,\mathcal{T}_{\alpha\beta} + \frac{1}{2}\,\alpha_2\,\partial_\alpha\varphi\,\partial^\alpha\varphi + \frac{1}{8}\,\alpha_1\,(36\,(1+2\,\varphi)\,\partial_\alpha\partial^\alpha\varphi - 12\,\partial_\alpha h^\beta{}_\beta\,\partial^\alpha\varphi + 18\,\partial_\alpha\varphi\,\partial^\alpha\varphi + 12\,\partial^\alpha\varphi\,\partial_\beta h_\alpha{}^\beta - 4\,\partial_\beta\partial_\alpha h^{\alpha\beta} + 4\,\partial_\beta\partial^\beta h^\alpha{}_\alpha - \partial_\beta h^\chi{}_\chi\,\partial^\beta h^\alpha{}_\alpha + 2\,\partial^\beta h^\alpha{}_\alpha\,\partial_\chi h_\beta{}^\chi - 2\,\partial_\beta h_{\alpha\chi}\,\partial^\chi h^{\alpha\beta} + \partial_\chi h_{\alpha\beta}\,\partial^\chi h^{\alpha\beta}) +$$
$$\alpha_5\,(-6\,\partial_\beta\partial_\alpha h^\chi{}_\chi\,\partial^\beta\partial^\alpha\varphi - 18\,\partial_\beta\partial_\alpha\varphi\,\partial^\beta\partial^\alpha\varphi + 6\,\partial^\beta\partial^\alpha\varphi\,\partial_\chi\partial_\alpha h_\beta{}^\chi + 6\,\partial^\beta\partial^\alpha\varphi\,\partial_\chi\partial_\beta h_\alpha{}^\chi - 6\,\partial^\beta\partial^\alpha\varphi\,\partial_\chi\partial^\chi h_{\alpha\beta} + 6\,\partial_\alpha\partial^\alpha\varphi\,(3\,\partial_\beta\partial^\beta\varphi - \partial_\chi\partial_\beta h^{\beta\chi} + \partial_\chi\partial^\chi h^\beta{}_\beta) - \partial_\chi\partial_\beta h^\delta{}_\delta\,\partial^\chi\partial^\beta h^\alpha{}_\alpha -$$
$$2\,\partial^\chi\partial_\alpha h^{\alpha\beta}\,\partial_\delta\partial_\beta h_\chi{}^\delta - 2\,\partial^\chi\partial_\alpha h^{\alpha\beta}\,\partial_\delta\partial_\chi h_\beta{}^\delta + 4\,\partial^\chi\partial^\beta h^\alpha{}_\alpha\,\partial_\delta\partial_\chi h_\beta{}^\delta + \partial_\beta\partial_\alpha h^{\alpha\beta}\,\partial_\delta\partial_\chi h^{\chi\delta} - 2\,\partial_\beta\partial^\beta h^\alpha{}_\alpha\,\partial_\delta\partial_\chi h^{\chi\delta} - \partial_\chi\partial^\chi h^{\alpha\beta}\,\partial_\delta\partial^\delta h_{\alpha\beta} + 4\,\partial^\chi\partial_\alpha h^{\alpha\beta}\,\partial_\delta\partial^\delta h_{\beta\chi} -$$
$$2\,\partial^\chi\partial^\beta h^\alpha{}_\alpha\,\partial_\delta\partial^\delta h_{\beta\chi} + \partial_\beta\partial^\beta h^\alpha{}_\alpha\,\partial_\delta\partial^\delta h^\chi{}_\chi + \partial_\beta\partial_\alpha h_{\chi\delta}\,\partial^\delta\partial^\chi h^{\alpha\beta} - \partial_\chi\partial_\beta h_{\alpha\delta}\,\partial^\delta\partial^\chi h^{\alpha\beta} - \partial_\delta\partial_\beta h_{\alpha\chi}\,\partial^\delta\partial^\chi h^{\alpha\beta} + \partial_\delta\partial_\chi h_{\alpha\beta}\,\partial^\delta\partial^\chi h^{\alpha\beta}))[t,\,x,\,y,\,z]\,dz\,dy\,dx\,dt$$

Wave operator

$$\begin{array}{c|ccc}
 & {}^{0^+}\varphi & {}^{0^+}h^\perp & {}^{0^+}h^\parallel \\
\hline
{}^{0^+}\varphi\,\dagger & \frac{1}{4}\,(9\,\alpha_1 + 2\,\alpha_2)\,k^2 & 0 & -\frac{3}{4}\,\sqrt{3}\,\alpha_1\,k^2 \\
{}^{0^+}h^\perp\,\dagger & 0 & 0 & 0 \\
{}^{0^+}h^\parallel\,\dagger & -\frac{3}{4}\,\sqrt{3}\,\alpha_1\,k^2 & 0 & -\frac{\alpha_1\,k^2}{4}
\end{array}$$

$$\begin{array}{c|c}
 & {}^{1^-}h^\perp{}_\alpha \\
\hline
{}^{1^-}h^\perp\,\dagger^\alpha & 0
\end{array}
\qquad
\begin{array}{c|c}
 & {}^{2^+}h^\parallel{}_{\alpha\beta} \\
\hline
{}^{2^+}h^\parallel\,\dagger^{\alpha\beta} & \frac{\alpha_1\,k^2}{8}
\end{array}$$

Saturated propagator

$$\begin{array}{c|ccc}
 & {}^{0^+}\rho & {}^{0^+}\mathcal{T}^\perp & {}^{0^+}\mathcal{T}^\parallel \\
\hline
{}^{0^+}\rho\,\dagger & \frac{2}{(18\,\alpha_1+\alpha_2)\,k^2} & 0 & -\frac{6\,\sqrt{3}}{(18\,\alpha_1+\alpha_2)\,k^2} \\
{}^{0^+}\mathcal{T}^\perp\,\dagger & 0 & 0 & 0 \\
{}^{0^+}\mathcal{T}^\parallel\,\dagger & -\frac{6\,\sqrt{3}}{(18\,\alpha_1+\alpha_2)\,k^2} & 0 & -\frac{2\,(9\,\alpha_1+2\,\alpha_2)}{\alpha_1\,(18\,\alpha_1+\alpha_2)\,k^2}
\end{array}$$

$$\begin{array}{c|c}
 & {}^{1^-}\mathcal{T}^\perp{}_\alpha \\
\hline
{}^{1^-}\mathcal{T}^\perp\,\dagger^\alpha & 0
\end{array}
\qquad
\begin{array}{c|c}
 & {}^{2^+}\mathcal{T}^\parallel{}_{\alpha\beta} \\
\hline
{}^{2^+}\mathcal{T}^\parallel\,\dagger^{\alpha\beta} & \frac{8}{\alpha_1\,k^2}
\end{array}$$

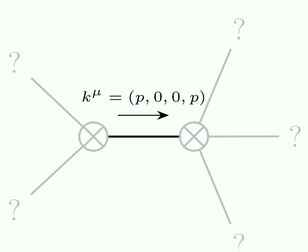
Source constraints

Spin-parity form	Covariant form	Multiplicities
${}^{0^+}\mathcal{T}^\perp == 0$	$\partial_\beta\partial_\alpha\mathcal{T}^{\alpha\beta} == 0$	1
${}^{1^-}\mathcal{T}^{\perp\alpha} == 0$	$\partial_\chi\partial_\beta\partial^\alpha\mathcal{T}^{\beta\chi} == \partial_\chi\partial^\chi\partial_\beta\mathcal{T}^{\alpha\beta}$	3
Total expected gauge generators:		4

Massive spectrum

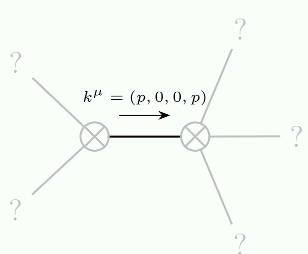
(No particles)

Massless spectrum



Massless particle

Pole residue:	$\frac{p^2}{\alpha_1} > 0$
Polarisations:	2



Massless particle

Pole residue:	$\frac{1+18\,p^2}{18\,\alpha_1+\alpha_2} > 0$
Polarisations:	1

Unitarity conditions

$\alpha_1 > 0\;\&\&\;\alpha_2 > -18\,\alpha_1$