PSALTer results panel

$$\mathcal{S} == \iiiint (\rho\varphi + h^{\alpha\beta}\,\mathcal{T}_{\alpha\beta} + \tfrac{1}{2}\alpha_{2}\,\partial_\alpha\varphi\,\partial^\alpha\varphi + \tfrac{1}{8}\alpha_{1}\,(12\,\partial_\alpha\partial^\alpha\varphi - 4\,\partial_\alpha h^{\beta}{}_{\beta}\,\partial^\alpha\varphi - 6\,\partial_\alpha\varphi\,\partial^\alpha\varphi + 4\,\partial^\alpha\varphi\,\partial_\beta h_{\alpha}{}^{\beta} - 4\,\partial_\beta\partial_\alpha h^{\alpha\beta} + 4\,\partial_\beta\partial^\beta h^{\alpha}{}_{\alpha} - \partial_\beta h^{\chi}{}_{\chi}\,\partial^\beta h^{\alpha}{}_{\alpha} + 2\,\partial^\beta h^{\alpha}{}_{\alpha}\,\partial_\chi h_{\beta}{}^{\chi} - 2\,\partial_\beta h_{\alpha\chi}\,\partial^\chi h^{\alpha\beta} + \partial_\chi h_{\alpha\beta}\,\partial^\chi h^{\alpha\beta}) +$$

$$\alpha_{5}\,(-2\,\partial_\beta\partial_\alpha h^{\chi}{}_{\chi}\,\partial^\beta\partial^\alpha\varphi - 2\,\partial_\beta\partial_\alpha\varphi\,\partial^\beta\partial^\alpha\varphi + 2\,\partial^\beta\partial^\alpha\varphi\,\partial_\chi\partial_\alpha h_{\beta}{}^{\chi} + 2\,\partial^\beta\partial^\alpha\varphi\,\partial_\chi\partial_\beta h_{\alpha}{}^{\chi} - 2\,\partial^\beta\partial^\alpha\varphi\,\partial_\chi\partial^\chi h_{\alpha\beta} + 2\,\partial_\alpha\partial^\alpha\varphi\,(\partial_\beta\partial^\beta\varphi - \partial_\chi\partial_\beta h^{\beta\chi} + \partial_\chi\partial^\chi h^{\beta}{}_{\beta}) - \partial_\chi\partial_\beta h^{\delta}{}_{\delta}\,\partial^\chi\partial^\beta h^{\alpha}{}_{\alpha} - 2\,\partial^\chi\partial_\alpha h^{\alpha\beta}\,\partial_\delta\partial_\beta h_{\chi}{}^{\delta} - 2\,\partial^\chi\partial_\alpha h^{\alpha\beta}\,\partial_\delta\partial_\chi h_{\beta}{}^{\delta} + 4\,\partial^\chi\partial^\beta h^{\alpha}{}_{\alpha}\,\partial_\delta\partial_\chi h_{\beta}{}^{\delta} +$$

$$\partial_\beta\partial_\alpha h^{\alpha\beta}\,\partial_\delta\partial_\chi h^{\chi\delta} - 2\,\partial_\beta\partial^\beta h^{\alpha}{}_{\alpha}\,\partial_\delta\partial_\chi h^{\chi\delta} - \partial_\chi\partial^\chi h^{\alpha\beta}\,\partial_\delta\partial^\delta h_{\alpha\beta} + 4\,\partial^\chi\partial_\alpha h^{\alpha\beta}\,\partial_\delta\partial^\delta h_{\beta\chi} - 2\,\partial^\chi\partial^\beta h^{\alpha}{}_{\alpha}\,\partial_\delta\partial^\delta h_{\beta\chi} + \partial_\beta\partial^\beta h^{\alpha}{}_{\alpha}\,\partial_\delta\partial^\delta h^{\chi}{}_{\chi} + \partial_\beta\partial_\alpha h_{\chi\delta}\,\partial^\delta\partial^\chi h^{\alpha\beta} - \partial_\chi\partial_\beta h_{\alpha\delta}\,\partial^\delta\partial^\chi h^{\alpha\beta} - \partial_\delta\partial_\beta h_{\alpha\chi}\,\partial^\delta\partial^\chi h^{\alpha\beta} + \partial_\delta\partial_\chi h_{\alpha\beta}\,\partial^\delta\partial^\chi h^{\alpha\beta}))[t, x, y, z]\,dz\,dy\,dx\,dt$$

Wave operator

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

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

Saturated propagator

$$\begin{array}{c|ccc|}
 & {}^{0^+}\!\rho & {}^{0^+}\!\mathcal{T}^{\perp} & {}^{0^+}\!\mathcal{T}^{\parallel} \\ \hline
{}^{0^+}\!\rho^\dagger & \frac{2}{\alpha_{2}k^2} & 0 & -\frac{2\sqrt{3}}{\alpha_{2}k^2} \\
{}^{0^+}\!\mathcal{T}^{\perp\dagger} & 0 & 0 & 0 \\
{}^{0^+}\!\mathcal{T}^{\parallel\dagger} & -\frac{2\sqrt{3}}{\alpha_{2}k^2} & 0 & \frac{6\alpha_{1} - 4\alpha_{2}}{\alpha_{1}\alpha_{2}k^2} \\ \hline
\end{array}$$

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

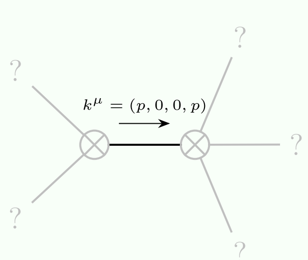
Source constraints

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

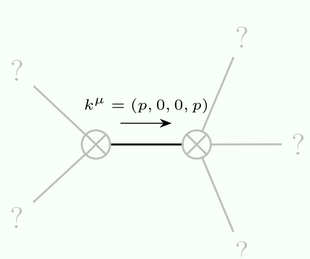
(No particles)

Massless spectrum



Massless particle

Pole residue:	$\frac{p^2}{\alpha_{1}} > 0$
Polarisations:	2



Massless particle

Pole residue:	$\frac{1+2p^2}{\alpha_{2}} > 0$
Polarisations:	1

Unitarity conditions

$\alpha_{1} > 0 \;\&\&\; \alpha_{2} > 0$