

PSALTer results panel

$S == \int \int \int \int \left(\rho \varphi + h^{\alpha\beta} \mathcal{T}_{\alpha\beta} + \alpha_2 \partial_\alpha \varphi \partial^\alpha \varphi + \frac{1}{2} \alpha_1 \left(\partial_\beta h^\chi{}_\chi \partial^\beta h^\alpha{}_\alpha + 2 \partial_\alpha h^{\alpha\beta} \partial_\chi h_\beta{}^\chi - 2 \partial^\beta h^\alpha{}_\alpha \partial_\chi h_\beta{}^\chi - \partial_\chi h_{\alpha\beta} \partial^\chi h^{\alpha\beta} \right) \right) [t, x, y, z] dz dy dx dt$

Wave operator

$$\begin{array}{c} \begin{array}{ccc} \begin{array}{c} \varphi \\ \vdots \\ \varphi^+ \end{array} & \begin{array}{c} h^\perp \\ \vdots \\ h^{\perp+} \end{array} & \begin{array}{c} h^\parallel \\ \vdots \\ h^{\parallel+} \end{array} \end{array} \\ \begin{array}{ccc} \begin{array}{c} \varphi \\ \vdots \\ \varphi^+ \end{array} \dagger & \begin{array}{c} h^\perp \\ \vdots \\ h^{\perp+} \end{array} \dagger & \begin{array}{c} h^\parallel \\ \vdots \\ h^{\parallel+} \end{array} \dagger \end{array} \\ \begin{array}{ccc} \begin{array}{c} \alpha_2 k^2 \\ \vdots \\ \alpha_2 k^2 \end{array} & \begin{array}{c} 0 \\ \vdots \\ 0 \end{array} & \begin{array}{c} 0 \\ \vdots \\ 0 \end{array} \\ \begin{array}{c} 0 \\ \vdots \\ 0 \end{array} & \begin{array}{c} 0 \\ \vdots \\ 0 \end{array} & \begin{array}{c} \alpha_1 k^2 \\ \vdots \\ \alpha_1 k^2 \end{array} \end{array} \\ \begin{array}{ccc} & \begin{array}{c} h^\perp \\ \vdots \\ h^{\perp+} \end{array} \dagger^\alpha & \begin{array}{c} h^\parallel \\ \vdots \\ h^{\parallel+} \end{array} \dagger^\alpha \end{array} \\ \begin{array}{ccc} & \begin{array}{c} 0 \\ \vdots \\ 0 \end{array} & \begin{array}{c} h^\parallel \\ \vdots \\ h^{\parallel+} \end{array} \dagger^\alpha \end{array} \\ \begin{array}{ccc} & & \begin{array}{c} h^\parallel \\ \vdots \\ h^{\parallel+} \end{array} \dagger^{\alpha\beta} \end{array} \\ \begin{array}{ccc} & & \begin{array}{c} \alpha_1 k^2 \\ \vdots \\ \alpha_1 k^2 \end{array} \end{array} \end{array}$$

Saturated propagator

$$\begin{array}{c} \begin{array}{ccc} \begin{array}{c} \rho \\ \vdots \\ \rho^+ \end{array} & \begin{array}{c} \mathcal{T}^\perp \\ \vdots \\ \mathcal{T}^{\perp+} \end{array} & \begin{array}{c} \mathcal{T}^\parallel \\ \vdots \\ \mathcal{T}^{\parallel+} \end{array} \end{array} \\ \begin{array}{ccc} \begin{array}{c} \rho \\ \vdots \\ \rho^+ \end{array} \dagger & \begin{array}{c} \mathcal{T}^\perp \\ \vdots \\ \mathcal{T}^{\perp+} \end{array} \dagger & \begin{array}{c} \mathcal{T}^\parallel \\ \vdots \\ \mathcal{T}^{\parallel+} \end{array} \dagger \end{array} \\ \begin{array}{ccc} \begin{array}{c} \frac{1}{\alpha_2 k^2} \\ \vdots \\ \frac{1}{\alpha_2 k^2} \end{array} & \begin{array}{c} 0 \\ \vdots \\ 0 \end{array} & \begin{array}{c} 0 \\ \vdots \\ 0 \end{array} \\ \begin{array}{c} 0 \\ \vdots \\ 0 \end{array} & \begin{array}{c} 0 \\ \vdots \\ 0 \end{array} & \begin{array}{c} \frac{1}{\alpha_1 k^2} \\ \vdots \\ \frac{1}{\alpha_1 k^2} \end{array} \end{array} \\ \begin{array}{ccc} & \begin{array}{c} \mathcal{T}^\perp \\ \vdots \\ \mathcal{T}^{\perp+} \end{array} \dagger^\alpha & \begin{array}{c} \mathcal{T}^\parallel \\ \vdots \\ \mathcal{T}^{\parallel+} \end{array} \dagger^\alpha \end{array} \\ \begin{array}{ccc} & \begin{array}{c} 0 \\ \vdots \\ 0 \end{array} & \begin{array}{c} \mathcal{T}^\parallel \\ \vdots \\ \mathcal{T}^{\parallel+} \end{array} \dagger^\alpha \end{array} \\ \begin{array}{ccc} & & \begin{array}{c} \mathcal{T}^\parallel \\ \vdots \\ \mathcal{T}^{\parallel+} \end{array} \dagger^{\alpha\beta} \end{array} \\ \begin{array}{ccc} & & \begin{array}{c} -\frac{2}{\alpha_1 k^2} \\ \vdots \\ -\frac{2}{\alpha_1 k^2} \end{array} \end{array} \end{array}$$

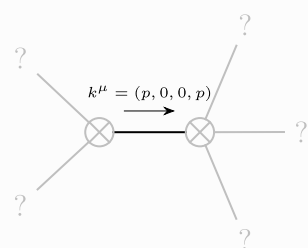
Source constraints

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

Massive spectrum

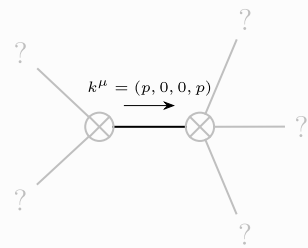
(There are no massive particles)

Massless spectrum



Massless particle

Pole residue:	$\frac{1}{\alpha_2} > 0$
Polarisations:	1



Massless particle

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

Gauge symmetries

(Not yet implemented in PSALTer)

Unitarity conditions

$\alpha_1 < 0 \ \&\& \ \alpha_2 > 0$

Validity assumptions

(Not yet implemented in PSALTer)