PSALTer results panel

$$\mathcal{S} == \int\int\int\int \Big(\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}\Big(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}\Big) - \alpha_{.}{}_{6}\Big(12\,\partial_\beta\partial_\alpha h^{\chi}{}_{\chi}\,\partial^\beta\partial^\alpha\varphi + 36\,\partial_\beta\partial_\alpha\varphi\,\partial^\beta\partial^\alpha\varphi - 12\,\partial^\beta\partial^\alpha\varphi\,\partial_\chi\partial_\alpha h_{\beta}{}^{\chi} - 12\,\partial^\beta\partial^\alpha\varphi\,\partial_\chi\partial_\beta h_{\alpha}{}^{\chi} + 12\,\partial^\beta\partial^\alpha\varphi\,\partial_\chi\partial^\chi h_{\alpha\beta} + 12\,\partial_\alpha\partial^\alpha\varphi\Big(6\,\partial_\beta\partial^\beta\varphi - \partial_\chi\partial_\beta h^{\beta\chi} + \partial_\chi\partial^\chi h^{\beta}{}_{\beta}\Big) + \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_\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}\Big) + \alpha_{.}{}_{5}\Big(9\,\partial_\alpha\partial^\alpha\varphi\Big(9\,\partial_\beta\partial^\beta\varphi - 2\,\partial_\chi\partial_\beta h^{\beta\chi} + 2\,\partial_\chi\partial^\chi h^{\beta}{}_{\beta}\Big) + \partial_\beta\partial_\alpha h^{\alpha\beta}\,\partial_\delta\partial_\chi h^{\chi\delta} + \partial_\beta\partial^\beta h^{\alpha}{}_{\alpha}\Big(-2\,\partial_\delta\partial_\chi h^{\chi\delta} + \partial_\delta\partial^\delta h^{\chi}{}_{\chi}\Big)\Big) + \alpha_{.}{}_{7}\Big(9\,\partial_\alpha\partial^\alpha\varphi\,\partial_\beta\partial^\beta\varphi + 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} + \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}\Big)\Big)[t,\,x,\,y,\,z]\,dz\,dy\,dx\,dt$$

Wave operator

	$\overset{0^+}{\cdot}\varphi$	$\overset{0^+}{\cdot}h^\perp$	$\overset{0^+}{\cdot}h^\parallel$	$\overset{1^-}{\cdot}h^\perp{}_\alpha$	$\overset{2^+}{\cdot}h^\parallel{}_{\alpha\beta}$
$\overset{0^+}{\cdot}\varphi\,\dagger$	$\frac{1}{4}\,k^2\left(9\,\alpha_{.}{}_{1} + 2\left(\alpha_{.}{}_{2} + 54\left(3\,\alpha_{.}{}_{5} - 4\,\alpha_{.}{}_{6} + \alpha_{.}{}_{7}\right)k^2\right)\right)$	0	$-\frac{3}{4}\,\sqrt{3}\,k^2\left(\alpha_{.}{}_{1} - 4\left(3\,\alpha_{.}{}_{5} - 4\,\alpha_{.}{}_{6} + \alpha_{.}{}_{7}\right)k^2\right)$		
$\overset{0^+}{\cdot}h^\perp\,\dagger$	0	0	0		
$\overset{0^+}{\cdot}h^\parallel\,\dagger$	$-\frac{3}{4}\,\sqrt{3}\,k^2\left(\alpha_{.}{}_{1} - 4\left(3\,\alpha_{.}{}_{5} - 4\,\alpha_{.}{}_{6} + \alpha_{.}{}_{7}\right)k^2\right)$	0	$-\frac{\alpha_{.}{}_{1}\,k^2}{4} + \left(3\,\alpha_{.}{}_{5} - 4\,\alpha_{.}{}_{6} + \alpha_{.}{}_{7}\right)k^4$		
$\overset{1^-}{\cdot}h^\perp\,\dagger^\alpha$				0	
$\overset{2^+}{\cdot}h^\parallel\,\dagger^{\alpha\beta}$					$\frac{\alpha_{.}{}_{1}\,k^2}{8} + \left(-\alpha_{.}{}_{6} + \alpha_{.}{}_{7}\right)k^4$

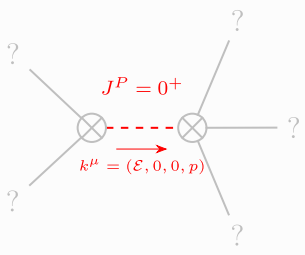
Saturated propagator

	$\overset{0^+}{\cdot}\rho$	$\overset{0^+}{\cdot}\mathcal{T}^\perp$	$\overset{0^+}{\cdot}\mathcal{T}^\parallel$	$\overset{1^-}{\cdot}\mathcal{T}^\perp{}_\alpha$	$\overset{2^+}{\cdot}\mathcal{T}^\parallel{}_{\alpha\beta}$
$\overset{0^+}{\cdot}\rho\,\dagger$	$\frac{2}{\left(18\,\alpha_{.}{}_{1} + \alpha_{.}{}_{2}\right)k^2}$	0	$-\frac{6\,\sqrt{3}}{\left(18\,\alpha_{.}{}_{1} + \alpha_{.}{}_{2}\right)k^2}$		
$\overset{0^+}{\cdot}\mathcal{T}^\perp\,\dagger$	0	0	0		
$\overset{0^+}{\cdot}\mathcal{T}^\parallel\,\dagger$	$-\frac{6\,\sqrt{3}}{\left(18\,\alpha_{.}{}_{1} + \alpha_{.}{}_{2}\right)k^2}$	0	$-\frac{2\left(9\,\alpha_{.}{}_{1} + 2\left(\alpha_{.}{}_{2} + 54\left(3\,\alpha_{.}{}_{5} - 4\,\alpha_{.}{}_{6} + \alpha_{.}{}_{7}\right)k^2\right)\right)}{\left(18\,\alpha_{.}{}_{1} + \alpha_{.}{}_{2}\right)k^2\left(\alpha_{.}{}_{1} - 4\left(3\,\alpha_{.}{}_{5} - 4\,\alpha_{.}{}_{6} + \alpha_{.}{}_{7}\right)k^2\right)}$		
$\overset{1^-}{\cdot}\mathcal{T}^\perp\,\dagger^\alpha$				0	
$\overset{2^+}{\cdot}\mathcal{T}^\parallel\,\dagger^{\alpha\beta}$					$\frac{8}{k^2\left(\alpha_{.}{}_{1} + 8\left(-\alpha_{.}{}_{6} + \alpha_{.}{}_{7}\right)k^2\right)}$

Source constraints

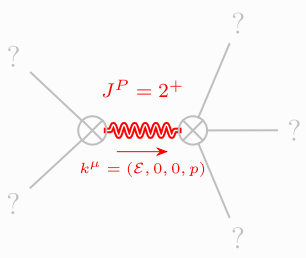
Spin-parity form	Covariant form	Multiplicities
$\overset{0^+}{\cdot}\mathcal{T}^\perp == 0$	$\partial_\beta\partial_\alpha\mathcal{T}^{\alpha\beta} == 0$	1
$\overset{1^-}{\cdot}\mathcal{T}^{\perp\,\alpha} == 0$	$\partial_\chi\partial_\beta\partial^\alpha\mathcal{T}^{\beta\chi} == \partial_\chi\partial^\chi\partial_\beta\mathcal{T}^{\alpha\beta}$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

Massive spectrum



Massive particle

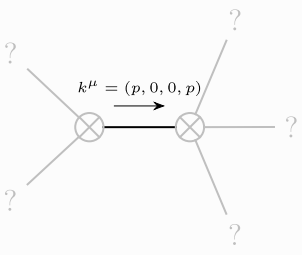
Pole residue:	$\frac{4}{\alpha_{.}{}_{1}} > 0$
Square mass:	$\frac{\alpha_{.}{}_{1}}{4\,(3\,\alpha_{.}{}_{5} - 4\,\alpha_{.}{}_{6} + \alpha_{.}{}_{7})} > 0$
Spin:	0
Parity:	Even



Massive particle

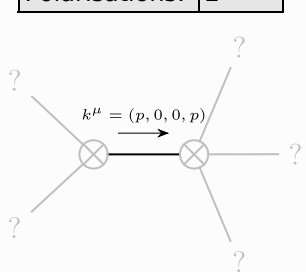
Pole residue:	$-\frac{8}{\alpha_{.}{}_{1}} > 0$
Square mass:	$\frac{\alpha_{.}{}_{1}}{8\,\alpha_{.}{}_{6} - 8\,\alpha_{.}{}_{7}} > 0$
Spin:	2
Parity:	Even

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

Gauge symmetries

(Not yet implemented in PSALTer)

Unitarity conditions

(Unitarity is demonstrably impossible)

Validity assumptions

(Not yet implemented in PSALTer)