PSALTer results panel

$$\mathcal{S} == \iiint\!\!\iint (\rho\,\varphi + h^{\alpha\beta}\,\mathcal{T}_{\alpha\beta} + \frac{1}{2}\,\alpha_{2}\,\partial_{\alpha}\varphi\,\partial^{\alpha}\varphi + \frac{1}{8}\,\alpha_{1}\,(24\,(1+\varphi)\,\partial_{\alpha}\partial^{\alpha}\varphi - 8\,\partial_{\alpha}h^{\beta}{}_{\beta}\,\partial^{\alpha}\varphi + 8\,\partial^{\alpha}\varphi\,\partial_{\beta}h_{\alpha}{}^{\beta} - 4\,\partial_{\beta}\partial_{\alpha}h^{\alpha\beta} + 4\,\partial_{\beta}\partial^{\beta}h^{\alpha}{}_{\alpha} - \partial_{\beta}h^{\chi}{}_{\chi}\,\partial^{\beta}h^{\alpha}{}_{\alpha} + 2\,\partial^{\beta}h^{\alpha}{}_{\alpha}\,\partial_{\chi}h_{\beta}{}^{\chi} - 2\,\partial_{\beta}h_{\alpha\chi}\,\partial^{\chi}h^{\alpha\beta} + \partial_{\chi}h_{\alpha\beta}\,\partial^{\chi}h^{\alpha\beta}) -$$
$$\alpha_{6}\,(8\,\partial_{\beta}\partial_{\alpha}h^{\chi}{}_{\chi}\,\partial^{\beta}\partial^{\alpha}\varphi + 16\,\partial_{\beta}\partial_{\alpha}\varphi\,\partial^{\beta}\partial^{\alpha}\varphi - 8\,\partial^{\beta}\partial^{\alpha}\varphi\,\partial_{\chi}\partial_{\alpha}h_{\beta}{}^{\chi} - 8\,\partial^{\beta}\partial^{\alpha}\varphi\,\partial_{\chi}\partial_{\beta}h_{\alpha}{}^{\chi} + 8\,\partial^{\beta}\partial^{\alpha}\varphi\,\partial_{\chi}\partial^{\chi}h_{\alpha\beta} + 8\,\partial_{\alpha}\partial^{\alpha}\varphi\,(4\,\partial_{\beta}\partial^{\beta}\varphi - \partial_{\chi}\partial_{\beta}h^{\beta\chi} + \partial_{\chi}\partial^{\chi}h^{\beta}{}_{\beta}) + \partial_{\chi}\partial_{\beta}h^{\delta}{}_{\delta}\,\partial^{\chi}\partial^{\beta}h^{\alpha}{}_{\alpha} + 2\,\partial^{\chi}\partial_{\alpha}h^{\alpha\beta}\,\partial_{\delta}\partial_{\beta}h_{\chi}{}^{\delta} + 2\,\partial^{\chi}\partial_{\alpha}h^{\alpha\beta}\,\partial_{\delta}\partial_{\chi}h_{\beta}{}^{\delta} - 4\,\partial^{\chi}\partial^{\beta}h^{\alpha}{}_{\alpha}\,\partial_{\delta}\partial_{\chi}h_{\beta}{}^{\delta} + \partial_{\chi}\partial^{\chi}h^{\alpha\beta}\,\partial_{\delta}\partial^{\delta}h_{\alpha\beta} - 4\,\partial^{\chi}\partial_{\alpha}h^{\alpha\beta}\,\partial_{\delta}\partial^{\delta}h_{\beta\chi} + 2\,\partial^{\chi}\partial^{\beta}h^{\alpha}{}_{\alpha}\,\partial_{\delta}\partial^{\delta}h_{\beta\chi}) +$$
$$\alpha_{5}\,(12\,\partial_{\alpha}\partial^{\alpha}\varphi\,(3\,\partial_{\beta}\partial^{\beta}\varphi - \partial_{\chi}\partial_{\beta}h^{\beta\chi} + \partial_{\chi}\partial^{\chi}h^{\beta}{}_{\beta}) + \partial_{\beta}\partial_{\alpha}h^{\alpha\beta}\,\partial_{\delta}\partial_{\chi}h^{\chi\delta} + \partial_{\beta}\partial^{\beta}h^{\alpha}{}_{\alpha}\,(-2\,\partial_{\delta}\partial_{\chi}h^{\chi\delta} + \partial_{\delta}\partial^{\delta}h^{\chi}{}_{\chi})) + \alpha_{7}\,(4\,\partial_{\alpha}\partial^{\alpha}\varphi\,\partial_{\beta}\partial^{\beta}\varphi + 4\,\partial_{\beta}\partial_{\alpha}h^{\chi}{}_{\chi}\,\partial^{\beta}\partial^{\alpha}\varphi + 8\,\partial_{\beta}\partial_{\alpha}\varphi\,\partial^{\beta}\partial^{\alpha}\varphi - 4\,\partial^{\beta}\partial^{\alpha}\varphi\,\partial_{\chi}\partial_{\alpha}h_{\beta}{}^{\chi} - 4\,\partial^{\beta}\partial^{\alpha}\varphi\,\partial_{\chi}\partial^{\chi}h_{\alpha\beta} + \partial_{\beta}\partial_{\alpha}h_{\chi\delta}\,\partial^{\delta}\partial^{\chi}h^{\alpha\beta} - \partial_{\chi}\partial_{\beta}h_{\alpha\delta}\,\partial^{\delta}\partial^{\chi}h^{\alpha\beta} - \partial_{\delta}\partial_{\beta}h_{\alpha\chi}\,\partial^{\delta}\partial^{\chi}h^{\alpha\beta} + \partial_{\delta}\partial_{\chi}h_{\alpha\beta}\,\partial^{\delta}\partial^{\chi}h^{\alpha\beta}))[t,\,x,\,y,\,z]\,dt\,dz\,dy\,dx\,dt$$

Wave operator

	$0^+_{\cdot}\varphi$	$0^+_{\cdot}h^{\perp}$	$0^+_{\cdot}h^{\parallel}$	$1^-_{\cdot}h^{\perp}{}_{\alpha}$	$2^+_{\cdot}h^{\parallel}{}_{\alpha\beta}$
$0^+_{\cdot}\varphi\,\dagger$	$\frac{1}{2}\,k^2\,(\alpha_{2} + 24\,(3\,\alpha_{5} - 4\,\alpha_{6} + \alpha_{7})\,k^2)$	0	$-\frac{1}{2}\,\sqrt{3}\,k^2\,(\alpha_{1} - 4\,(3\,\alpha_{5} - 4\,\alpha_{6} + \alpha_{7})\,k^2)$		
$0^+_{\cdot}h^{\perp}\,\dagger$	0	0	0		
$0^+_{\cdot}h^{\parallel}\,\dagger$	$-\frac{1}{2}\,\sqrt{3}\,k^2\,(\alpha_{1} - 4\,(3\,\alpha_{5} - 4\,\alpha_{6} + \alpha_{7})\,k^2)$	0	$-\frac{\alpha_{1}\,k^2}{4} + (3\,\alpha_{5} - 4\,\alpha_{6} + \alpha_{7})\,k^4$		
$1^-_{\cdot}h^{\perp}\,\dagger^{\alpha}$				0	
$2^+_{\cdot}h^{\parallel}\,\dagger^{\alpha\beta}$					$\frac{\alpha_{1}\,k^2}{8} + (-\alpha_{6} + \alpha_{7})\,k^4$

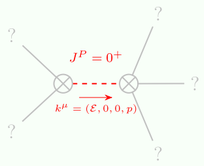
Saturated propagator

	$0^+_{\cdot}\rho$	$0^+_{\cdot}\mathcal{T}^{\perp}$	$0^+_{\cdot}\mathcal{T}^{\parallel}$	$1^-_{\cdot}\mathcal{T}^{\perp}{}_{\alpha}$	$2^+_{\cdot}\mathcal{T}^{\parallel}{}_{\alpha\beta}$
$0^+_{\cdot}\rho\,\dagger$	$\frac{2}{(6\,\alpha_{1} + \alpha_{2})\,k^2}$	0	$-\frac{4\,\sqrt{3}}{(6\,\alpha_{1} + \alpha_{2})\,k^2}$		
$0^+_{\cdot}\mathcal{T}^{\perp}\,\dagger$	0	0	0		
$0^+_{\cdot}\mathcal{T}^{\parallel}\,\dagger$	$-\frac{4\,\sqrt{3}}{(6\,\alpha_{1} + \alpha_{2})\,k^2}$	0	$-\frac{4\,(\alpha_{2} + 24\,(3\,\alpha_{5} - 4\,\alpha_{6} + \alpha_{7})\,k^2)}{(6\,\alpha_{1} + \alpha_{2})\,k^2\,(\alpha_{1} - 4\,(3\,\alpha_{5} - 4\,\alpha_{6} + \alpha_{7})\,k^2)}$		
$1^-_{\cdot}\mathcal{T}^{\perp}\,\dagger^{\alpha}$				0	
$2^+_{\cdot}\mathcal{T}^{\parallel}\,\dagger^{\alpha\beta}$					$\frac{8}{k^2\,(\alpha_{1} + 8\,(-\alpha_{6} + \alpha_{7})\,k^2)}$

Source constraints

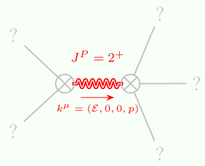
Spin-parity form	Covariant form	Multiplicities
$0^+_{\cdot}\mathcal{T}^{\perp} == 0$	$\partial_{\beta}\partial_{\alpha}\mathcal{T}^{\alpha\beta} == 0$	1
$1^-_{\cdot}\mathcal{T}^{\perp\,\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\mathcal{T}^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\mathcal{T}^{\alpha\beta}$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

Massive spectrum



Massive particle

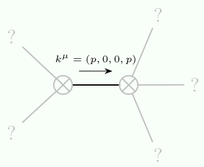
Pole residue:	$\frac{4}{\alpha_{1}} > 0$
Square mass:	$\frac{\alpha_{1}}{4\,(3\,\alpha_{5} - 4\,\alpha_{6} + \alpha_{7})} > 0$
Spin:	0
Parity:	Even



Massive particle

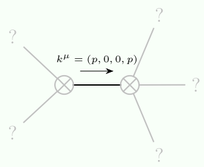
Pole residue:	$-\frac{8}{\alpha_{1}} > 0$
Square mass:	$\frac{\alpha_{1}}{8\,\alpha_{6} - 8\,\alpha_{7}} > 0$
Spin:	2
Parity:	Even

Massless spectrum



Massless particle

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



Massless particle

Pole residue:	$\frac{1 + 8\,p^2}{6\,\alpha_{1} + \alpha_{2}} > 0$
Polarisations:	1

Unitarity conditions

(Demonstrably impossible)