PSALTer results panel

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

Wave operator

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

	$1^{-}\cdot h^{\perp}{}_{\alpha}$
$1^{-}\cdot h^{\perp}\dagger^{\alpha}$	0

	$2^{+}\cdot h^{\parallel}{}_{\alpha\beta}$
$2^{+}\cdot h^{\parallel}\dagger^{\alpha\beta}$	$\frac{\alpha_{1}k^{2}}{8}+(-\alpha_{6}+\alpha_{7})k^{4}$

Saturated propagator

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

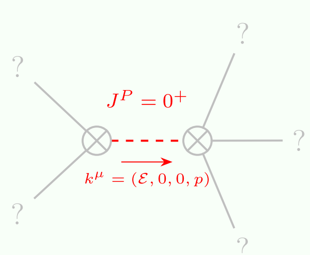
	$1^{-}\cdot\mathcal{T}^{\perp}{}_{\alpha}$
$1^{-}\cdot\mathcal{T}^{\perp}\dagger^{\alpha}$	0

	$2^{+}\cdot\mathcal{T}^{\parallel}{}_{\alpha\beta}$
$2^{+}\cdot\mathcal{T}^{\parallel}\dagger^{\alpha\beta}$	$\frac{8}{k^{2}(\alpha_{1}+8(-\alpha_{6}+\alpha_{7})k^{2})}$

Source constraints

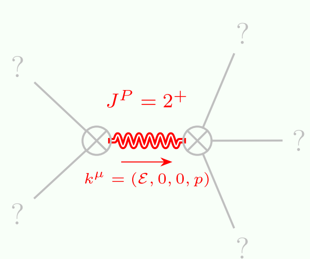
Spin-parity form	Covariant form	Multiplicities
$0^{+}\cdot\mathcal{T}^{\perp} == 0$	$\partial_{\beta}\partial_{\alpha}\mathcal{T}^{\alpha\beta} == 0$	1
$1^{-}\cdot\mathcal{T}^{\perp\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\mathcal{T}^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\mathcal{T}^{\alpha\beta}$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

Massive spectrum



Massive particle

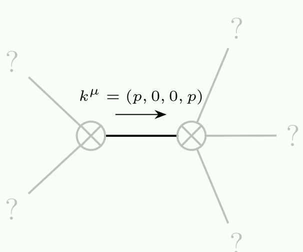
Pole residue:	$\frac{4}{\alpha_{1}} > 0$
Square mass:	$\frac{\alpha_{1}}{4(3\alpha_{5}-4\alpha_{6}+\alpha_{7})} > 0$
Spin:	0
Parity:	Even



Massive particle

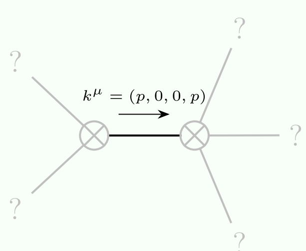
Pole residue:	$-\frac{8}{\alpha_{1}} > 0$
Square mass:	$\frac{\alpha_{1}}{8\alpha_{6}-8\alpha_{7}} > 0$
Spin:	2
Parity:	Even

Massless spectrum



Massless particle

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



Massless particle

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

Unitarity conditions

(Demonstrably impossible)