PSALTer results panel

$$S = \iiint\!\!\iint \left(\frac{1}{4}\left(-2\,a_0\,\mathcal{R}_{\alpha\chi\beta}\,\mathcal{R}^{\alpha\beta\chi} + 2\,a_0\,\mathcal{R}^{\alpha}{}_{\alpha}{}^{\beta}\,\mathcal{R}^{\chi}{}_{\beta\chi} + 4\,\mathcal{R}^{\alpha\beta\chi}\,\mathcal{W}_{\alpha\beta\chi} + 4\,\mathcal{T}^{\alpha\beta}\,h_{\alpha\beta} + 2\,a_0\,h^{\alpha\beta}\,\partial_\beta\mathcal{R}^{\chi}{}_{\alpha\chi} - 2\,a_0\,h^{\alpha\beta}\,\partial_\chi\mathcal{R}^{\chi}{}_{\alpha\beta} - a_0\,h^{\alpha}{}_{\alpha}\,\partial_\chi\mathcal{R}^{\beta\chi}{}_{\beta} + a_0\,h^{\alpha}{}_{\alpha}\,\partial_\chi\mathcal{R}^{\beta\chi}{}_{\beta} + h_2\,\partial_\beta\mathcal{R}^{\chi}{}_{\chi}{}^{\delta}{}_{\delta}\,\partial^{\chi}\mathcal{R}^{\alpha}{}_{\alpha}{}^{\beta} - h_2\,\partial_\chi\mathcal{R}^{\delta}{}_{\beta}{}^{\chi}{}_{\delta}\,\partial^{\chi}\mathcal{R}^{\alpha}{}_{\alpha}{}^{\beta}\right)\right)\mathrm{d}t\,\mathrm{d}x\,\mathrm{d}y\,\mathrm{d}z$$

Wave operator

	$\overset{0}{\cdot}h^{\perp}$	$\overset{0}{\cdot}h^{\parallel}$	$\overset{0}{\cdot}\mathcal{S}_s{}^{\perp t}$	$\overset{0}{\cdot}\mathcal{S}_s{}^{\parallel}$	$\overset{0}{\cdot}\mathcal{S}_s{}^{\perp h}$
$\overset{0}{\cdot}h^{\perp}\,\dagger$	0	0	0	$\frac{i\,a_0\,k}{4}$	$\frac{i\,a_0\,k}{8\sqrt{2}}$
$\overset{0}{\cdot}h^{\parallel}\,\dagger$	0	0	0	$-\frac{i\,a_0\,k}{4\sqrt{3}}$	$\frac{5\,i\,a_0\,k}{8\sqrt{6}}$
$\overset{0}{\cdot}\mathcal{S}_s{}^{\perp t}\,\dagger$	0	0	0	$\frac{a_0}{2}$	$\frac{a_0}{4\sqrt{2}}$
$\overset{0}{\cdot}\mathcal{S}_s{}^{\parallel}\,\dagger$	$-\frac{1}{4}\,i\,a_0\,k$	$\frac{i\,a_0\,k}{4\sqrt{3}}$	$\frac{a_0}{2}$	0	$\frac{a_0}{4\sqrt{2}}$
$\overset{0}{\cdot}\mathcal{S}_s{}^{\perp h}\,\dagger$	$-\frac{i\,a_0\,k}{8\sqrt{2}}$	$-\frac{5\,i\,a_0\,k}{8\sqrt{6}}$	$\frac{a_0}{4\sqrt{2}}$	$\frac{a_0}{4\sqrt{2}}$	$-\frac{a_0}{4}$

	$\overset{1}{\cdot}\mathcal{S}_s{}^{\perp}{}_{\alpha\beta}$	$\overset{1}{\cdot}h^{\perp}{}_{\alpha}$	$\overset{1}{\cdot}\mathcal{S}_s{}^{\perp t}{}_{\alpha}$	$\overset{1}{\cdot}\mathcal{S}_s{}^{\parallel t}{}_{\alpha}$	$\overset{1}{\cdot}\mathcal{S}_s{}^{\perp h}{}_{\alpha}$	$\overset{1}{\cdot}\mathcal{S}_s{}^{\parallel h}{}_{\alpha}$
$\overset{1}{\cdot}\mathcal{S}_s{}^{\perp}\,\dagger^{\alpha\beta}$	$\frac{a_0}{4}$	0	0	0	0	0
$\overset{1}{\cdot}h^{\perp}\,\dagger^{\alpha}$	0	0	$-\frac{i\,a_0\,k}{4\sqrt{6}}$	$\frac{1}{4}\,i\,\sqrt{\frac{5}{6}}\,a_0\,k$	$\frac{i\,a_0\,k}{8\sqrt{3}}$	$-\frac{i\,a_0\,k}{4\sqrt{6}}$
$\overset{1}{\cdot}\mathcal{S}_s{}^{\perp t}\,\dagger^{\alpha}$	0	$\frac{i\,a_0\,k}{4\sqrt{6}}$	$\frac{1}{12}\left(-4\,a_0 - k^2\,h_2\right)$	$\frac{1}{12}\sqrt{5}\left(2\,a_0 - k^2\,h_2\right)$	$\frac{a_0+k^2\,h_2}{12\sqrt{2}}$	$\frac{1}{12}\left(a_0 + k^2\,h_2\right)$
$\overset{1}{\cdot}\mathcal{S}_s{}^{\parallel t}\,\dagger^{\alpha}$	0	$-\frac{1}{4}\,i\,\sqrt{\frac{5}{6}}\,a_0\,k$	$\frac{1}{12}\sqrt{5}\left(2\,a_0 - k^2\,h_2\right)$	$\frac{1}{12}\left(4\,a_0 - 5\,k^2\,h_2\right)$	$\frac{1}{12}\sqrt{\frac{5}{2}}\left(a_0 + k^2\,h_2\right)$	$\frac{1}{12}\sqrt{5}\left(a_0 + k^2\,h_2\right)$
$\overset{1}{\cdot}\mathcal{S}_s{}^{\perp h}\,\dagger^{\alpha}$	0	$-\frac{i\,a_0\,k}{8\sqrt{3}}$	$\frac{a_0+k^2\,h_2}{12\sqrt{2}}$	$\frac{1}{12}\sqrt{\frac{5}{2}}\left(a_0 + k^2\,h_2\right)$	$\frac{1}{24}\left(2\,a_0 - k^2\,h_2\right)$	$-\frac{4\,a_0+k^2\,h_2}{12\sqrt{2}}$
$\overset{1}{\cdot}\mathcal{S}_s{}^{\parallel h}\,\dagger^{\alpha}$	0	$\frac{i\,a_0\,k}{4\sqrt{6}}$	$\frac{1}{12}\left(a_0 + k^2\,h_2\right)$	$\frac{1}{12}\sqrt{5}\left(a_0 + k^2\,h_2\right)$	$-\frac{4\,a_0+k^2\,h_2}{12\sqrt{2}}$	$\frac{1}{12}\left(-a_0 - k^2\,h_2\right)$

	$\overset{2}{\cdot}h^{\parallel}{}_{\alpha\beta}$	$\overset{2}{\cdot}\mathcal{S}_s{}^{\parallel}{}_{\alpha\beta}$	$\overset{2}{\cdot}\mathcal{S}_s{}^{\perp}{}_{\alpha\beta}$	$\overset{2}{\cdot}\mathcal{S}_s{}^{\parallel}{}_{\alpha\beta\chi}$
$\overset{2}{\cdot}h^{\parallel}\,\dagger^{\alpha\beta}$	0	$-\frac{i\,a_0\,k}{4\sqrt{3}}$	$-\frac{i\,a_0\,k}{2\sqrt{6}}$	0
$\overset{2}{\cdot}\mathcal{S}_s{}^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{i\,a_0\,k}{4\sqrt{3}}$	$-\frac{a_0}{2}$	0	0
$\overset{2}{\cdot}\mathcal{S}_s{}^{\perp}\,\dagger^{\alpha\beta}$	$\frac{i\,a_0\,k}{2\sqrt{6}}$	0	$\frac{a_0}{4}$	0
$\overset{2}{\cdot}\mathcal{S}_s{}^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	0	$\frac{a_0}{4}$

	$\overset{3}{\cdot}\mathcal{S}_s{}^{\parallel}{}_{\alpha\beta\chi}$
$\overset{3}{\cdot}\mathcal{S}_s{}^{\parallel}\,\dagger^{\alpha\beta\chi}$	$-\frac{a_0}{2}$

Saturated propagator

	$\overset{0}{\cdot}\mathcal{T}^{\perp}$	$\overset{0}{\cdot}\mathcal{T}^{\parallel}$	$\overset{0}{\cdot}\mathcal{W}_s{}^{\perp t}$	$\overset{0}{\cdot}\mathcal{W}_s{}^{\parallel}$	$\overset{0}{\cdot}\mathcal{W}_s{}^{\perp h}$
$\overset{0}{\cdot}\mathcal{T}^{\perp}\,\dagger$	$-\frac{4\,k^2}{3\,a_0\,(4+k^2)^2}$	0	$-\frac{8\,i\,k}{3\,a_0\,(4+k^2)^2}$	$\frac{10\,i\,k}{12\,a_0+3\,a_0\,k^2}$	$\frac{4\,i\,\sqrt{2}\,k}{12\,a_0+3\,a_0\,k^2}$
$\overset{0}{\cdot}\mathcal{T}^{\parallel}\,\dagger$	0	$\frac{4}{a_0\,k^2}$	0	$-\frac{2\,i}{\sqrt{3}\,a_0\,k}$	$\frac{4\,i\,\sqrt{\frac{2}{3}}}{a_0\,k}$
$\overset{0}{\cdot}\mathcal{W}_s{}^{\perp t}\,\dagger$	$\frac{8\,i\,k}{3\,a_0\,(4+k^2)^2}$	0	$-\frac{16}{3\,a_0\,(4+k^2)^2}$	$\frac{20}{12\,a_0+3\,a_0\,k^2}$	$\frac{8\sqrt{2}}{12\,a_0+3\,a_0\,k^2}$
$\overset{0}{\cdot}\mathcal{W}_s{}^{\parallel}\,\dagger$	$-\frac{10\,i\,k}{12\,a_0+3\,a_0\,k^2}$	$\frac{2\,i}{\sqrt{3}\,a_0\,k}$	$\frac{20}{12\,a_0+3\,a_0\,k^2}$	0	0
$\overset{0}{\cdot}\mathcal{W}_s{}^{\perp h}\,\dagger$	$-\frac{4\,i\,\sqrt{2}\,k}{12\,a_0+3\,a_0\,k^2}$	$-\frac{4\,i\,\sqrt{\frac{2}{3}}}{a_0\,k}$	$\frac{8\sqrt{2}}{12\,a_0+3\,a_0\,k^2}$	0	0

	$\overset{1}{\cdot}\mathcal{W}_s{}^{\perp}{}_{\alpha\beta}$	$\overset{1}{\cdot}\mathcal{T}^{\perp}{}_{\alpha}$	$\overset{1}{\cdot}\mathcal{W}_s{}^{\perp t}{}_{\alpha}$	$\overset{1}{\cdot}\mathcal{W}_s{}^{\parallel t}{}_{\alpha}$	$\overset{1}{\cdot}\mathcal{W}_s{}^{\perp h}{}_{\alpha}$	$\overset{1}{\cdot}\mathcal{W}_s{}^{\parallel h}{}_{\alpha}$
$\overset{1}{\cdot}\mathcal{W}_s{}^{\perp}\,\dagger^{\alpha\beta}$	$\frac{4}{a_0}$	0	0	0	0	0
$\overset{1}{\cdot}\mathcal{T}^{\perp}\,\dagger^{\alpha}$	0	$\frac{6\,a_0\,k^2+8\,k^4\,h_2}{a_0\,(2+k^2)^2\left(3\,a_0+k^2\,h_2\right)}$	$-\frac{2\,i\,\sqrt{\frac{2}{3}}\,k\left(3\,a_0\,(1+k^2)+2\,k^4\,h_2\right)}{a_0\,(2+k^2)^2\left(3\,a_0+k^2\,h_2\right)}$	$\frac{i\,\sqrt{\frac{10}{3}}\,k\left(3\,a_0+2\,k^2\,h_2\right)}{a_0\,(2+k^2)\left(3\,a_0+k^2\,h_2\right)}$	$\frac{2\,i\,k\left(3\,a_0\,(4+k^2)+2\,k^2\,(6+k^2)\,h_2\right)}{\sqrt{3}\,a_0\,(2+k^2)^2\left(3\,a_0+k^2\,h_2\right)}$	$\frac{4\,i\,\sqrt{\frac{2}{3}}\,k\left(-3\,a_0+k^2\,h_2\right)}{a_0\,(2+k^2)\left(3\,a_0+k^2\,h_2\right)}$
$\overset{1}{\cdot}\mathcal{W}_s{}^{\perp t}\,\dagger^{\alpha}$	0	$\frac{2\,i\,\sqrt{\frac{2}{3}}\,k\left(3\,a_0\,(1+k^2)+2\,k^4\,h_2\right)}{a_0\,(2+k^2)^2\left(3\,a_0+k^2\,h_2\right)}$	$-\frac{4\left(a_0\,(13+10\,k^2+k^4)+4\,k^2\,(1+k^2)\,h_2\right)}{3\,a_0\,(2+k^2)^2\left(3\,a_0+k^2\,h_2\right)}$	$\frac{2\sqrt{5}\left(a_0\,(5+k^2)+2\,k^2\,h_2\right)}{3\,a_0\,(2+k^2)\left(3\,a_0+k^2\,h_2\right)}$	$\frac{2\sqrt{2}\left(a_0\,(4+k^2+k^4)-2\,k^2\,(-2+k^2)\,h_2\right)}{3\,a_0\,(2+k^2)^2\left(3\,a_0+k^2\,h_2\right)}$	$\frac{8\left(a_0+2\,a_0\,k^2+k^4\,h_2\right)}{3\,a_0\,(2+k^2)\left(3\,a_0+k^2\,h_2\right)}$
$\overset{1}{\cdot}\mathcal{W}_s{}^{\parallel t}\,\dagger^{\alpha}$	0	$-\frac{i\,\sqrt{\frac{10}{3}}\,k\left(3\,a_0+2\,k^2\,h_2\right)}{a_0\,(2+k^2)\left(3\,a_0+k^2\,h_2\right)}$	$\frac{2\sqrt{5}\left(a_0\,(5+k^2)+2\,k^2\,h_2\right)}{3\,a_0\,(2+k^2)\left(3\,a_0+k^2\,h_2\right)}$	$\frac{4}{3\,a_0} - \frac{5}{9\,a_0+3\,k^2\,h_2}$	$\frac{\sqrt{16}\left(-a_0\,(-4+k^2)+4\,k^2\,h_2\right)}{3\,a_0\,(2+k^2)\left(3\,a_0+k^2\,h_2\right)}$	$\frac{4\sqrt{5}\left(a_0+k^2\,h_2\right)}{3\,a_0\left(3\,a_0+k^2\,h_2\right)}$
$\overset{1}{\cdot}\mathcal{W}_s{}^{\perp h}\,\dagger^{\alpha}$	0	$-\frac{2\,i\,k\left(3\,a_0\,(4+k^2)+2\,k^2\,(6+k^2)\,h_2\right)}{\sqrt{3}\,a_0\,(2+k^2)^2\left(3\,a_0+k^2\,h_2\right)}$	$\frac{2\sqrt{2}\left(a_0\,(4+k^2+k^4)-2\,k^2\,(-2+k^2)\,h_2\right)}{3\,a_0\,(2+k^2)^2\left(3\,a_0+k^2\,h_2\right)}$	$\frac{\sqrt{16}\left(-a_0\,(-4+k^2)+4\,k^2\,h_2\right)}{3\,a_0\,(2+k^2)\left(3\,a_0+k^2\,h_2\right)}$	$\frac{-2\,a_0\left(-32-8\,k^2+k^4\right)+16\,k^2\,(4+k^2)\,h_2}{3\,a_0\,(2+k^2)^2\left(3\,a_0+k^2\,h_2\right)}$	$-\frac{8\sqrt{2}\left(a_0\,(5+k^2)-k^2\,h_2\right)}{3\,a_0\,(2+k^2)\left(3\,a_0+k^2\,h_2\right)}$
$\overset{1}{\cdot}\mathcal{W}_s{}^{\parallel h}\,\dagger^{\alpha}$	0	$\frac{4\,i\,\sqrt{\frac{2}{3}}\,k\left(3\,a_0-k^2\,h_2\right)}{a_0\,(2+k^2)\left(3\,a_0+k^2\,h_2\right)}$	$\frac{8\left(a_0+2\,a_0\,k^2+k^4\,h_2\right)}{3\,a_0\,(2+k^2)\left(3\,a_0+k^2\,h_2\right)}$	$\frac{4\sqrt{5}\left(a_0+k^2\,h_2\right)}{3\,a_0\left(3\,a_0+k^2\,h_2\right)}$	$-\frac{8\sqrt{2}\left(a_0\,(5+k^2)-k^2\,h_2\right)}{3\,a_0\,(2+k^2)\left(3\,a_0+k^2\,h_2\right)}$	$\frac{4}{3}\left(\frac{5}{a_0} - \frac{16}{3\,a_0+k^2\,h_2}\right)$

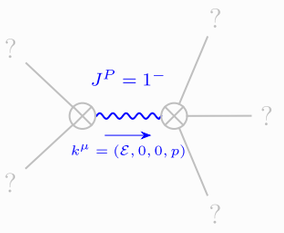
	$\overset{2}{\cdot}\mathcal{T}^{\parallel}{}_{\alpha\beta}$	$\overset{2}{\cdot}\mathcal{W}_s{}^{\parallel}{}_{\alpha\beta}$	$\overset{2}{\cdot}\mathcal{W}_s{}^{\perp}{}_{\alpha\beta}$	$\overset{2}{\cdot}\mathcal{W}_s{}^{\parallel}{}_{\alpha\beta\chi}$
$\overset{2}{\cdot}\mathcal{T}^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{8}{a_0\,k^2}$	$\frac{4\,i}{\sqrt{3}\,a_0\,k}$	$-\frac{8\,i\,\sqrt{\frac{2}{3}}}{a_0\,k}$	0
$\overset{2}{\cdot}\mathcal{W}_s{}^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{4\,i}{\sqrt{3}\,a_0\,k}$	$-\frac{8}{3\,a_0}$	$\frac{4\sqrt{2}}{3\,a_0}$	0
$\overset{2}{\cdot}\mathcal{W}_s{}^{\perp}\,\dagger^{\alpha\beta}$	$\frac{8\,i\,\sqrt{\frac{2}{3}}}{a_0\,k}$	$\frac{4\sqrt{2}}{3\,a_0}$	$-\frac{4}{3\,a_0}$	0
$\overset{2}{\cdot}\mathcal{W}_s{}^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	0	$\frac{4}{a_0}$

	$\overset{3}{\cdot}\mathcal{W}_s{}^{\parallel}{}_{\alpha\beta\chi}$
$\overset{3}{\cdot}\mathcal{W}_s{}^{\parallel}\,\dagger^{\alpha\beta\chi}$	$-\frac{2}{a_0}$

Source constraints

Spin-parity form	Covariant form	Multiplicities
$k\,\overset{0}{\cdot}\mathcal{W}_s{}^{\perp t} + 2\,i\,\overset{0}{\cdot}\mathcal{T}^{\perp} == 0$	$2\,\partial_\beta\partial_\alpha\mathcal{T}^{\alpha\beta} == \partial_\chi\partial_\beta\partial_\alpha\mathcal{W}^{\alpha\beta\chi}$	1
$2\,k\,\overset{1}{\cdot}\mathcal{W}_s{}^{\perp h}{}^{\alpha} + k\,\overset{1}{\cdot}\mathcal{W}_s{}^{\perp t}{}^{\alpha} + 6\,i\,\overset{1}{\cdot}\mathcal{T}^{\perp}{}^{\alpha} == 0$	$2\,\partial_\chi\partial_\beta\partial^\alpha\mathcal{T}^{\beta\chi} + \partial_\delta\partial^\delta\partial_\chi\partial_\beta\mathcal{W}^{\beta\alpha\chi} == 2\,\partial_\chi\partial^\chi\delta_\beta\mathcal{T}^{\alpha\beta} + \partial_\delta\partial_\chi\partial_\beta\partial^\alpha\mathcal{W}^{\beta\chi\delta}$	3
Total expected gauge generators:		4

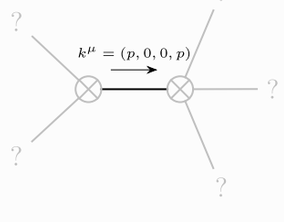
Massive spectrum



Massive particle

Pole residue:	$\frac{75\,a_0 - 68\,h_2}{3\,a_0\,h_2 - 2\,h_2^2} > 0$
Square mass:	$-\frac{3\,a_0}{h_2} > 0$
Spin:	1
Parity:	Odd

Massless spectrum



Massless particle

Pole residue:	$-\frac{p^2}{a_0} > 0$
Polarisations:	2

Gauge symmetries

(Not yet implemented in PSALTer)

Unitarity conditions

$a_0 < 0 \;\&\&\; h_2 > 0$

Validity assumptions

(Not yet implemented in PSALTer)