PSALTer results panel

$$\mathcal{S} == \iiint\!\!\int (\mathcal{A}^{\alpha\beta\chi}\ \sigma_{\alpha\beta\chi} + f^{\alpha\beta}\ \tau (\Delta+\mathcal{K})_{\alpha\beta} - \frac{1}{2}\, \alpha_{0}\, (\mathcal{A}_{\alpha\chi\beta}\ \mathcal{A}^{\alpha\beta\chi} + \mathcal{A}^{\alpha\beta}{}_{\alpha}\ \mathcal{A}_{\beta}{}^{\chi}{}_{\chi} + 2\, f^{\alpha\beta}\, \partial_{\beta}\mathcal{A}_{\alpha}{}^{\chi}{}_{\chi} - 2\, \partial_{\beta}\mathcal{A}^{\alpha\beta}{}_{\alpha} - 2\, f^{\alpha\beta}\, \partial_{\chi}\mathcal{A}_{\alpha}{}^{\chi}{}_{\beta} + 2\, f^{\alpha}{}_{\alpha}\, \partial_{\chi}\mathcal{A}^{\beta\chi}{}_{\beta}) -$$
$$\alpha_{1}\, (\partial_{\chi}\mathcal{A}_{\beta}{}^{\delta}{}_{\delta}\partial^{\chi}\mathcal{A}^{\alpha\beta}{}_{\alpha} + (\partial_{\alpha}\mathcal{A}^{\alpha\beta\chi} - 2\,\partial^{\chi}\mathcal{A}^{\alpha\beta}{}_{\alpha})\,\partial_{\delta}\mathcal{A}_{\beta}{}^{\delta}{}_{\chi}) + 4\,\alpha_{3}\,\partial_{\beta}\mathcal{A}^{\alpha\beta}{}_{\alpha}\partial_{\delta}\mathcal{A}^{\chi\delta}{}_{\chi} - \alpha_{2}\,(\partial_{\chi}\mathcal{A}_{\delta}{}^{\zeta}{}_{\zeta}\partial^{\delta}\mathcal{A}^{\beta\chi}{}_{\beta} + (\partial_{\beta}\mathcal{A}^{\beta\chi\delta} - 2\,\partial^{\delta}\mathcal{A}^{\beta\chi}{}_{\beta})\,\partial_{\zeta}\mathcal{A}_{\delta}{}^{\zeta}{}_{\chi}))[t, x, y, z]\, dz\, dy\, dx\, dt$$

Wave operator

	$0^+_{.}\mathcal{A}^{\parallel}$	$0^+_{.}f^{\parallel}$	$0^+_{.}f^{\perp}$	$0^-_{.}\mathcal{A}^{\parallel}$
$0^+_{.}\mathcal{A}^{\parallel}\,\dagger$	$\frac{1}{2}\,(\alpha_{0} + 4\,(\alpha_{1} + \alpha_{2} + 3\,\alpha_{3})\,k^2)$	$-\frac{i\,\alpha_{0}\,k}{\sqrt{2}}$	0	0
$0^+_{.}f^{\parallel}\,\dagger$	$\frac{i\,\alpha_{0}\,k}{\sqrt{2}}$	0	0	0
$0^+_{.}f^{\perp}\,\dagger$	0	0	0	0
$0^-_{.}\mathcal{A}^{\parallel}\,\dagger$	0	0	0	$\frac{\alpha_{0}}{2}$

	$1^+_{.}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$1^+_{.}\mathcal{A}^{\perp}{}_{\alpha\beta}$	$1^+_{.}f^{\parallel}{}_{\alpha\beta}$	$1^-_{.}\mathcal{A}^{\parallel}{}_{\alpha}$	$1^-_{.}\mathcal{A}^{\perp}{}_{\alpha}$	$1^-_{.}f^{\parallel}{}_{\alpha}$	$1^-_{.}f^{\perp}{}_{\alpha}$
$1^+_{.}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{1}{4}\,(\alpha_{0} + 2\,(\alpha_{1} - \alpha_{2})\,k^2)$	$\frac{\alpha_{0}}{2\sqrt{2}}$	$\frac{i\,\alpha_{0}\,k}{2\sqrt{2}}$	0	0	0	0
$1^+_{.}\mathcal{A}^{\perp}\,\dagger^{\alpha\beta}$	$\frac{\alpha_{0}}{2\sqrt{2}}$	0	0	0	0	0	0
$1^+_{.}f^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{i\,\alpha_{0}\,k}{2\sqrt{2}}$	0	0	0	0	0	0
$1^-_{.}\mathcal{A}^{\parallel}\,\dagger^{\alpha}$	0	0	0	$\frac{\alpha_{0}}{4} + \alpha_{1}\,k^2$	$-\frac{\alpha_{0}}{2\sqrt{2}}$	0	$-\frac{1}{2}\,i\,\alpha_{0}\,k$
$1^-_{.}\mathcal{A}^{\perp}\,\dagger^{\alpha}$	0	0	0	$-\frac{\alpha_{0}}{2\sqrt{2}}$	0	0	0
$1^-_{.}f^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_{.}f^{\perp}\,\dagger^{\alpha}$	0	0	0	$\frac{i\,\alpha_{0}\,k}{2}$	0	0	0

	$2^+_{.}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$2^+_{.}f^{\parallel}{}_{\alpha\beta}$	$2^-_{.}\mathcal{A}^{\parallel}{}_{\alpha\beta\chi}$
$2^+_{.}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{1}{4}\,(-\alpha_{0} + 2\,(\alpha_{1} + \alpha_{2})\,k^2)$	$\frac{i\,\alpha_{0}\,k}{2\sqrt{2}}$	0
$2^+_{.}f^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{i\,\alpha_{0}\,k}{2\sqrt{2}}$	0	0
$2^-_{.}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	$-\frac{\alpha_{0}}{4}$

Saturated propagator

	$0^+_{.}\sigma^{\parallel}$	$0^+_{.}\tau^{\parallel}$	$0^+_{.}\tau^{\perp}$	$0^-_{.}\sigma^{\parallel}$
$0^+_{.}\sigma^{\parallel}\,\dagger$	0	$-\frac{i\sqrt{2}}{\alpha_{0}\,k}$	0	0
$0^+_{.}\tau^{\parallel}\,\dagger$	$\frac{i\sqrt{2}}{\alpha_{0}\,k}$	$-\frac{4\,(\alpha_{1}+\alpha_{2}+3\,\alpha_{3})+\frac{\alpha_{0}}{k^2}}{\alpha_{0}^{2}}$	0	0
$0^+_{.}\tau^{\perp}\,\dagger$	0	0	0	0
$0^-_{.}\sigma^{\parallel}\,\dagger$	0	0	0	$\frac{2}{\alpha_{0}}$

	$1^+_{.}\sigma^{\parallel}{}_{\alpha\beta}$	$1^+_{.}\sigma^{\perp}{}_{\alpha\beta}$	$1^+_{.}\tau^{\parallel}{}_{\alpha\beta}$	$1^-_{.}\sigma^{\parallel}{}_{\alpha}$	$1^-_{.}\sigma^{\perp}{}_{\alpha}$	$1^-_{.}\tau^{\parallel}{}_{\alpha}$	$1^-_{.}\tau^{\perp}{}_{\alpha}$
$1^+_{.}\sigma^{\parallel}\,\dagger^{\alpha\beta}$	0	$\frac{2\sqrt{2}}{\alpha_{0}+\alpha_{0}\,k^2}$	$\frac{2\,i\sqrt{2}\,k}{\alpha_{0}+\alpha_{0}\,k^2}$	0	0	0	0
$1^+_{.}\sigma^{\perp}\,\dagger^{\alpha\beta}$	$\frac{2\sqrt{2}}{\alpha_{0}+\alpha_{0}\,k^2}$	$-\frac{2\,(\alpha_{0}+2\,(\alpha_{1}-\alpha_{2})\,k^2)}{\alpha_{0}^{2}\,(1+k^2)^2}$	$-\frac{2\,i\,k\,(\alpha_{0}+2\,(\alpha_{1}-\alpha_{2})\,k^2)}{\alpha_{0}^{2}\,(1+k^2)^2}$	0	0	0	0
$1^+_{.}\tau^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{2\,i\sqrt{2}\,k}{\alpha_{0}+\alpha_{0}\,k^2}$	$\frac{2\,i\,k\,(\alpha_{0}+2\,(\alpha_{1}-\alpha_{2})\,k^2)}{\alpha_{0}^{2}\,(1+k^2)^2}$	$-\frac{2\,k^2\,(\alpha_{0}+2\,(\alpha_{1}-\alpha_{2})\,k^2)}{\alpha_{0}^{2}\,(1+k^2)^2}$	0	0	0	0
$1^-_{.}\sigma^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	$-\frac{2\sqrt{2}}{\alpha_{0}+2\,\alpha_{0}\,k^2}$	0	$-\frac{4\,i\,k}{\alpha_{0}+2\,\alpha_{0}\,k^2}$
$1^-_{.}\sigma^{\perp}\,\dagger^{\alpha}$	0	0	0	$-\frac{2\sqrt{2}}{\alpha_{0}+2\,\alpha_{0}\,k^2}$	$-\frac{2\,(\alpha_{0}+4\,\alpha_{1}\,k^2)}{(\alpha_{0}+2\,\alpha_{0}\,k^2)^2}$	0	$-\frac{2\,i\sqrt{2}\,k\,(\alpha_{0}+4\,\alpha_{1}\,k^2)}{(\alpha_{0}+2\,\alpha_{0}\,k^2)^2}$
$1^-_{.}\tau^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_{.}\tau^{\perp}\,\dagger^{\alpha}$	0	0	0	$\frac{4\,i\,k}{\alpha_{0}+2\,\alpha_{0}\,k^2}$	$\frac{2\,i\sqrt{2}\,k\,(\alpha_{0}+4\,\alpha_{1}\,k^2)}{(\alpha_{0}+2\,\alpha_{0}\,k^2)^2}$	0	$-\frac{4\,k^2\,(\alpha_{0}+4\,\alpha_{1}\,k^2)}{(\alpha_{0}+2\,\alpha_{0}\,k^2)^2}$

	$2^+_{.}\sigma^{\parallel}{}_{\alpha\beta}$	$2^+_{.}\tau^{\parallel}{}_{\alpha\beta}$	$2^-_{.}\sigma^{\parallel}{}_{\alpha\beta\chi}$
$2^+_{.}\sigma^{\parallel}\,\dagger^{\alpha\beta}$	0	$\frac{2\,i\sqrt{2}}{\alpha_{0}\,k}$	0
$2^+_{.}\tau^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{2\,i\sqrt{2}}{\alpha_{0}\,k}$	$\frac{2\,(\alpha_{0}-2\,(\alpha_{1}+\alpha_{2})\,k^2)}{\alpha_{0}^{2}\,k^2}$	0
$2^-_{.}\sigma^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	$-\frac{4}{\alpha_{0}}$

Source constraints

Spin-parity form	Covariant form	Multiplicities
$0^+_{.}\tau^{\perp} == 0$	$\partial_{\beta}\partial_{\alpha}\tau\,(\Delta+\mathcal{K})^{\alpha\beta} == 0$	1
$2\,i\,k\ 1^-_{.}\sigma^{\perp}{}^{\alpha} + 1^-_{.}\tau^{\perp}{}^{\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau\,(\Delta+\mathcal{K})^{\alpha\beta} + 2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial_{\beta}\sigma^{\beta\alpha\chi}$	3
$1^-_{.}\tau^{\parallel}{}^{\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau\,(\Delta+\mathcal{K})^{\beta\alpha}$	3
$i\,k\ 1^+_{.}\sigma^{\perp}{}^{\alpha\beta} + 1^+_{.}\tau^{\parallel}{}^{\alpha\beta} == 0$	$\partial_{\chi}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\beta\chi} + \partial_{\chi}\partial^{\beta}\tau\,(\Delta+\mathcal{K})^{\chi\alpha} + \partial_{\chi}\partial^{\chi}\tau\,(\Delta+\mathcal{K})^{\alpha\beta} + 2\,\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta} + 2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\chi\alpha\beta} == \partial_{\chi}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\chi\beta} + \partial_{\chi}\partial^{\beta}\tau\,(\Delta+\mathcal{K})^{\alpha\chi} + \partial_{\chi}\partial^{\chi}\tau\,(\Delta+\mathcal{K})^{\beta\alpha} + 2\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta}$	3
Total expected gauge generators:		10

Massive spectrum

(No particles)

Massless spectrum

Massless particle

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

Unitarity conditions

$\alpha_{0} > 0$