PSALTer results panel

$$\mathcal{S} == \iiint\int\left(\frac{1}{6}\left(2\left(t_{.}{}_{1} - 2t_{.}{}_{3}\right)\mathcal{A}^{\alpha\prime}{}_{\alpha}\,\mathcal{A}_{\prime}{}^{\theta}{}_{\theta} + 6\,\mathcal{A}^{\alpha\beta\chi}\,\sigma_{\alpha\beta\chi} + 6\,f^{\alpha\beta}\,\tau\left(\Delta+\mathcal{K}\right)_{\alpha\beta} - 4t_{.}{}_{1}\,\mathcal{A}_{\alpha}{}^{\theta}{}_{\theta}\,\partial_{\prime}f^{\alpha\prime} + 8t_{.}{}_{3}\,\mathcal{A}_{\alpha}{}^{\theta}{}_{\theta}\,\partial_{\prime}f^{\alpha\prime} + 4t_{.}{}_{1}\,\mathcal{A}_{\prime}{}^{\theta}{}_{\theta}\,\partial^{\prime}f^{\alpha}{}_{\alpha} - 8t_{.}{}_{3}\,\mathcal{A}_{\prime}{}^{\theta}{}_{\theta}\,\partial^{\prime}f^{\alpha}{}_{\alpha} - 2t_{.}{}_{1}\partial_{\prime}f^{\theta}{}_{\theta}\partial^{\prime}f^{\alpha}{}_{\alpha} + 4t_{.}{}_{3}\partial_{\prime}f^{\theta}{}_{\theta}\partial^{\prime}f^{\alpha}{}_{\alpha} - 2t_{.}{}_{1}\partial_{\prime}f^{\alpha\prime}\partial_{\theta}f_{\alpha}{}^{\theta} + 4t_{.}{}_{3}\partial_{\prime}f^{\alpha\prime}\partial_{\theta}f_{\alpha}{}^{\theta} + 4t_{.}{}_{1}\partial^{\prime}f^{\alpha}{}_{\alpha}\partial_{\theta}f_{\prime}{}^{\theta} - 8t_{.}{}_{3}\partial^{\prime}f^{\alpha}{}_{\alpha}\partial_{\theta}f_{\prime}{}^{\theta} + 8r_{.}{}_{2}\,\partial_{\beta}\mathcal{A}_{\alpha\prime\theta}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} - 4r_{.}{}_{2}\,\partial_{\beta}\mathcal{A}_{\alpha\theta\prime}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} + 4r_{.}{}_{2}\,\partial_{\beta}\mathcal{A}_{\prime\theta\alpha}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} - 2r_{.}{}_{2}\,\partial_{\prime}\mathcal{A}_{\alpha\beta\theta}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} + 2r_{.}{}_{2}\,\partial_{\theta}\mathcal{A}_{\alpha\beta\prime}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} - 4r_{.}{}_{2}\,\partial_{\theta}\mathcal{A}_{\alpha\prime\beta}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} - 6t_{.}{}_{1}\,\partial_{\alpha}f_{\prime\theta}\partial^{\theta}f^{\alpha\prime} - 3t_{.}{}_{1}\,\partial_{\alpha}f_{\theta\prime}\partial^{\theta}f^{\alpha\prime} + 3t_{.}{}_{1}\,\partial_{\prime}f_{\alpha\theta}\partial^{\theta}f^{\alpha\prime} + 3t_{.}{}_{1}\,\partial_{\theta}f_{\alpha\prime}\partial^{\theta}f^{\alpha\prime} + 3t_{.}{}_{1}\,\partial_{\theta}f_{\prime\alpha}\partial^{\theta}f^{\alpha\prime} + 6t_{.}{}_{1}\,\mathcal{A}_{\alpha\theta\prime}\left(\mathcal{A}^{\alpha\prime\theta} + 2\,\partial^{\theta}f^{\alpha\prime}\right)\right)\right)[t,\,x,\,y,\,z]\,\mathrm{d}t\,\mathrm{d}x\,\mathrm{d}y\,\mathrm{d}z$$

Wave operator

	$0^+_{.}\mathcal{A}^{\parallel}$	$0^+_{.}f^{\parallel}$	$0^+_{.}f^{\perp}$	$0^-_{.}\mathcal{A}^{\parallel}$
$0^+_{.}\mathcal{A}^{\parallel}\,\dagger$	$t_{.}{}_{3}$	$-i\sqrt{2}\,k t_{.}{}_{3}$	0	0
$0^+_{.}f^{\parallel}\,\dagger$	$i\sqrt{2}\,k t_{.}{}_{3}$	$2k^2 t_{.}{}_{3}$	0	0
$0^+_{.}f^{\perp}\,\dagger$	0	0	0	0
$0^-_{.}\mathcal{A}^{\parallel}\,\dagger$	0	0	0	$k^2 r_{.}{}_{2} - t_{.}{}_{1}$

	$1^+_{.}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$1^+_{.}\mathcal{A}^{\perp}{}_{\alpha\beta}$	$1^+_{.}f^{\parallel}{}_{\alpha\beta}$	$1^-_{.}\mathcal{A}^{\parallel}{}_{\alpha}$	$1^-_{.}\mathcal{A}^{\perp}{}_{\alpha}$	$1^-_{.}f^{\parallel}{}_{\alpha}$	$1^-_{.}f^{\perp}{}_{\alpha}$
$1^+_{.}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{t_{.}{}_{1}}{2}$	$-\frac{t_{.}{}_{1}}{\sqrt{2}}$	$-\frac{ik t_{.}{}_{1}}{\sqrt{2}}$	0	0	0	0
$1^+_{.}\mathcal{A}^{\perp}\,\dagger^{\alpha\beta}$	$-\frac{t_{.}{}_{1}}{\sqrt{2}}$	0	0	0	0	0	0
$1^+_{.}f^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{ik t_{.}{}_{1}}{\sqrt{2}}$	0	0	0	0	0	0
$1^-_{.}\mathcal{A}^{\parallel}\,\dagger^{\alpha}$	0	0	0	$\frac{1}{6}\left(t_{.}{}_{1} + 4t_{.}{}_{3}\right)$	$\frac{t_{.}{}_{1} - 2t_{.}{}_{3}}{3\sqrt{2}}$	0	$\frac{1}{3}ik\left(t_{.}{}_{1} - 2t_{.}{}_{3}\right)$
$1^-_{.}\mathcal{A}^{\perp}\,\dagger^{\alpha}$	0	0	0	$\frac{t_{.}{}_{1} - 2t_{.}{}_{3}}{3\sqrt{2}}$	$\frac{t_{.}{}_{1} + t_{.}{}_{3}}{3}$	0	$\frac{1}{3}i\sqrt{2}\,k\left(t_{.}{}_{1} + t_{.}{}_{3}\right)$
$1^-_{.}f^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_{.}f^{\perp}\,\dagger^{\alpha}$	0	0	0	$-\frac{1}{3}ik\left(t_{.}{}_{1} - 2t_{.}{}_{3}\right)$	$-\frac{1}{3}i\sqrt{2}\,k\left(t_{.}{}_{1} + t_{.}{}_{3}\right)$	0	$\frac{2}{3}k^2\left(t_{.}{}_{1} + t_{.}{}_{3}\right)$

	$2^+_{.}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$2^+_{.}f^{\parallel}{}_{\alpha\beta}$	$2^-_{.}\mathcal{A}^{\parallel}{}_{\alpha\beta\chi}$
$2^+_{.}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{t_{.}{}_{1}}{2}$	$-\frac{ik t_{.}{}_{1}}{\sqrt{2}}$	0
$2^+_{.}f^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{ik t_{.}{}_{1}}{\sqrt{2}}$	$k^2 t_{.}{}_{1}$	0
$2^-_{.}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	$\frac{t_{.}{}_{1}}{2}$

Saturated propagator

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

	$1^+_{.}\sigma^{\parallel}{}_{\alpha\beta}$	$1^+_{.}\sigma^{\perp}{}_{\alpha\beta}$	$1^+_{.}\tau^{\parallel}{}_{\alpha\beta}$	$1^-_{.}\sigma^{\parallel}{}_{\alpha}$	$1^-_{.}\sigma^{\perp}{}_{\alpha}$	$1^-_{.}\tau^{\parallel}{}_{\alpha}$	$1^-_{.}\tau^{\perp}{}_{\alpha}$
$1^+_{.}\sigma^{\parallel}\,\dagger^{\alpha\beta}$	0	$-\frac{\sqrt{2}}{t_{.}{}_{1} + k^2 t_{.}{}_{1}}$	$-\frac{i\sqrt{2}\,k}{t_{.}{}_{1} + k^2 t_{.}{}_{1}}$	0	0	0	0
$1^+_{.}\sigma^{\perp}\,\dagger^{\alpha\beta}$	$-\frac{\sqrt{2}}{t_{.}{}_{1} + k^2 t_{.}{}_{1}}$	$\frac{1}{(1+k^2)^2 t_{.}{}_{1}}$	$\frac{ik}{(1+k^2)^2 t_{.}{}_{1}}$	0	0	0	0
$1^+_{.}\tau^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{i\sqrt{2}\,k}{t_{.}{}_{1} + k^2 t_{.}{}_{1}}$	$-\frac{ik}{(1+k^2)^2 t_{.}{}_{1}}$	$\frac{k^2}{(1+k^2)^2 t_{.}{}_{1}}$	0	0	0	0
$1^-_{.}\sigma^{\parallel}\,\dagger^{\alpha}$	0	0	0	$\frac{2\left(t_{.}{}_{1} + t_{.}{}_{3}\right)}{3t_{.}{}_{1}t_{.}{}_{3}}$	$-\frac{\sqrt{2}\left(t_{.}{}_{1} - 2t_{.}{}_{3}\right)}{3\left(1+2k^2\right)t_{.}{}_{1}t_{.}{}_{3}}$	0	$-\frac{2ik t_{.}{}_{1} - 4ik t_{.}{}_{3}}{3t_{.}{}_{1}t_{.}{}_{3} + 6k^2 t_{.}{}_{1}t_{.}{}_{3}}$
$1^-_{.}\sigma^{\perp}\,\dagger^{\alpha}$	0	0	0	$-\frac{\sqrt{2}\left(t_{.}{}_{1} - 2t_{.}{}_{3}\right)}{3\left(1+2k^2\right)t_{.}{}_{1}t_{.}{}_{3}}$	$\frac{t_{.}{}_{1} + 4t_{.}{}_{3}}{3\left(1+2k^2\right)^2 t_{.}{}_{1}t_{.}{}_{3}}$	0	$\frac{i\sqrt{2}\,k\left(t_{.}{}_{1} + 4t_{.}{}_{3}\right)}{3\left(1+2k^2\right)^2 t_{.}{}_{1}t_{.}{}_{3}}$
$1^-_{.}\tau^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_{.}\tau^{\perp}\,\dagger^{\alpha}$	0	0	0	$\frac{2ik t_{.}{}_{1} - 4ik t_{.}{}_{3}}{3t_{.}{}_{1}t_{.}{}_{3} + 6k^2 t_{.}{}_{1}t_{.}{}_{3}}$	$-\frac{i\sqrt{2}\,k\left(t_{.}{}_{1} + 4t_{.}{}_{3}\right)}{3\left(1+2k^2\right)^2 t_{.}{}_{1}t_{.}{}_{3}}$	0	$\frac{2k^2\left(t_{.}{}_{1} + 4t_{.}{}_{3}\right)}{3\left(1+2k^2\right)^2 t_{.}{}_{1}t_{.}{}_{3}}$

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

Source constraints

Spin-parity form	Covariant form	Multiplicities
$0^+_{.}\tau^{\perp} == 0$	$\partial_{\beta}\partial_{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\alpha\beta} == 0$	1
$-2i\,k\,0^+_{.}\sigma^{\parallel} + 0^+_{.}\tau^{\parallel} == 0$	$\partial_{\beta}\partial_{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\alpha\beta} == \partial_{\beta}\partial^{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\alpha}{}_{\alpha} + 2\,\partial_{\chi}\partial^{\chi}\partial_{\beta}\sigma^{\alpha}{}_{\alpha}{}^{\beta}$	1
$2i\,k\,1^-_{.}\sigma^{\perp\alpha} + 1^-_{.}\tau^{\perp\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\alpha\beta} + 2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial_{\beta}\sigma^{\beta\alpha\chi}$	3
$1^-_{.}\tau^{\parallel\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\beta\alpha}$	3
$i\,k\,1^+_{.}\sigma^{\perp\alpha\beta} + 1^+_{.}\tau^{\parallel\alpha\beta} == 0$	$\partial_{\chi}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\beta\chi} + \partial_{\chi}\partial^{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\chi\alpha} + \partial_{\chi}\partial^{\chi}\tau\left(\Delta+\mathcal{K}\right)^{\alpha\beta} + 2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\chi\beta\delta} + 2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\chi\alpha\beta} == \partial_{\chi}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\chi\beta} + \partial_{\chi}\partial^{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\alpha\chi} + \partial_{\chi}\partial^{\chi}\tau\left(\Delta+\mathcal{K}\right)^{\beta\alpha} + 2\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta}$	3
$-2i\,k\,2^+_{.}\sigma^{\parallel\alpha\beta} + 2^+_{.}\tau^{\parallel\alpha\beta} == 0$	$-i\left(4\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\chi\delta} + 2\,\partial_{\delta}\partial^{\delta}\partial^{\beta}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\chi}{}_{\chi} - 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\beta\chi} - 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\chi\beta} - 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\alpha\chi} - 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\chi\alpha} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau\left(\Delta+\mathcal{K}\right)^{\alpha\beta} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau\left(\Delta+\mathcal{K}\right)^{\beta\alpha} + 4i\,k^{\chi}\,\partial_{\epsilon}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\sigma^{\delta}{}_{\delta}{}^{\epsilon} - 6i\,k^{\chi}\,\partial_{\epsilon}\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\delta\beta\epsilon} - 6i\,k^{\chi}\,\partial_{\epsilon}\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\delta\alpha\epsilon} + 6i\,k^{\chi}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\sigma^{\alpha\beta\delta} + 6i\,k^{\chi}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\sigma^{\beta\alpha\delta} + 2\,\eta^{\alpha\beta}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\tau\left(\Delta+\mathcal{K}\right)^{\chi\delta} - 2\,\eta^{\alpha\beta}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\tau\left(\Delta+\mathcal{K}\right)^{\chi}{}_{\chi} - 4i\,\eta^{\alpha\beta}\,k^{\chi}\,\partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial_{\chi}\sigma^{\delta}{}_{\delta}{}^{\epsilon}\right) == 0$	5
Total expected gauge generators:		16

Massive spectrum

Massive particle

Pole residue:	$-\frac{1}{r_{.}{}_{2}} > 0$
Square mass:	$\frac{t_{.}{}_{1}}{r_{.}{}_{2}} > 0$
Spin:	0
Parity:	Odd

Massless spectrum

(No particles)

Unitarity conditions

$r_{.}{}_{2} < 0 \;\&\&\; t_{.}{}_{1} < 0$