PSALTer results panel

$$\mathcal{S} == \int\int\int\int (\frac{1}{6} (6 t_{1.} \mathcal{A}^{\alpha\imath}{}_{\alpha} \mathcal{A}_{\imath}{}^{\theta}{}_{\theta} + 6 \mathcal{A}^{\alpha\beta\chi} \sigma_{\alpha\beta\chi} + 6 f^{\alpha\beta} \tau (\Delta+\mathcal{K})_{\alpha\beta} - 12 t_{1.} \mathcal{A}_{\alpha}{}^{\theta}{}_{\theta} \partial_{\imath} f^{\alpha\imath} + 12 t_{1.} \mathcal{A}_{\imath}{}^{\theta}{}_{\theta} \partial^{\imath} f^{\alpha}{}_{\alpha} - 6 t_{1.} \partial_{\imath} f^{\theta}{}_{\theta} \partial^{\imath} f^{\alpha}{}_{\alpha} - 6 t_{1.} \partial_{\imath} f^{\alpha\imath} \partial_{\theta} f_{\alpha}{}^{\theta} + 12 t_{1.} \partial^{\imath} f^{\alpha}{}_{\alpha} \partial_{\theta} f_{\imath}{}^{\theta} + 8 r_{2.} \partial_{\beta} \mathcal{A}_{\alpha\imath\theta} \partial^{\theta} \mathcal{A}^{\alpha\beta\imath} - 4 r_{2.} \partial_{\beta} \mathcal{A}_{\alpha\theta\imath} \partial^{\theta} \mathcal{A}^{\alpha\beta\imath} + 4 r_{2.} \partial_{\beta} \mathcal{A}_{\imath\theta\alpha} \partial^{\theta} \mathcal{A}^{\alpha\beta\imath} - 2 r_{2.} \partial_{\imath} \mathcal{A}_{\alpha\beta\theta} \partial^{\theta} \mathcal{A}^{\alpha\beta\imath} + 2 r_{2.} \partial_{\theta} \mathcal{A}_{\alpha\beta\imath} \partial^{\theta} \mathcal{A}^{\alpha\beta\imath} - 4 r_{2.} \partial_{\theta} \mathcal{A}_{\alpha\imath\beta} \partial^{\theta} \mathcal{A}^{\alpha\beta\imath} + 4 t_{1.} \mathcal{A}_{\imath\theta\alpha} \partial^{\theta} f^{\alpha\imath} + 4 t_{2.} \mathcal{A}_{\imath\theta\alpha} \partial^{\theta} f^{\alpha\imath} - 4 t_{1.} \partial_{\alpha} f_{\imath\theta} \partial^{\theta} f^{\alpha\imath} + 2 t_{2.} \partial_{\alpha} f_{\imath\theta} \partial^{\theta} f^{\alpha\imath} - 4 t_{1.} \partial_{\alpha} f_{\theta\imath} \partial^{\theta} f^{\alpha\imath} - t_{2.} \partial_{\alpha} f_{\theta\imath} \partial^{\theta} f^{\alpha\imath} + 2 t_{1.} \partial_{\imath} f_{\alpha\theta} \partial^{\theta} f^{\alpha\imath} - t_{2.} \partial_{\imath} f_{\alpha\theta} \partial^{\theta} f^{\alpha\imath} + 4 t_{1.} \partial_{\theta} f_{\alpha\imath} \partial^{\theta} f^{\alpha\imath} + t_{2.} \partial_{\theta} f_{\alpha\imath} \partial^{\theta} f^{\alpha\imath} + 2 t_{1.} \partial_{\theta} f_{\imath\alpha} \partial^{\theta} f^{\alpha\imath} - t_{2.} \partial_{\theta} f_{\imath\alpha} \partial^{\theta} f^{\alpha\imath} + 2 (t_{1.} + t_{2.}) \mathcal{A}_{\alpha\imath\theta} (\mathcal{A}^{\alpha\imath\theta} + 2 \partial^{\theta} f^{\alpha\imath}) + 2 \mathcal{A}_{\alpha\theta\imath} ((t_{1.} - 2 t_{2.}) \mathcal{A}^{\alpha\imath\theta} + 2 (2 t_{1.} - t_{2.}) \partial^{\theta} f^{\alpha\imath})))[t, x, y, z] dz dy dx dt$$

Wave operator

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

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

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

Saturated propagator

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

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

	$2^+_{.}\sigma^{\parallel}{}_{\alpha\beta}$	$2^+_{.}\tau^{\parallel}{}_{\alpha\beta}$	$2^-_{.}\sigma^{\parallel}{}_{\alpha\beta\chi}$
$2^+_{.}\sigma^{\parallel}\dagger^{\alpha\beta}$	$\frac{2}{(1+2k^2)^2 t_{1.}}$	$-\frac{2i\sqrt{2}\,k}{(1+2k^2)^2 t_{1.}}$	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
$0^+_{.}\tau^{\perp} == 0$	$\partial_{\beta}\partial_{\alpha}\tau(\Delta+\mathcal{K})^{\alpha\beta} == 0$	1
$-2ik\,0^+_{.}\sigma^{\parallel} + 0^+_{.}\tau^{\parallel} == 0$	$\partial_{\beta}\partial_{\alpha}\tau(\Delta+\mathcal{K})^{\alpha\beta} == \partial_{\beta}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\alpha}{}_{\alpha} + 2\partial_{\chi}\partial^{\chi}\partial_{\beta}\sigma^{\alpha}{}_{\alpha}{}^{\beta}$	1
$2ik\,1^-_{.}\sigma^{\perp\alpha} + 1^-_{.}\tau^{\perp\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau(\Delta+\mathcal{K})^{\alpha\beta} + 2\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial_{\beta}\sigma^{\beta\alpha\chi}$	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
$ik\,1^+_{.}\sigma^{\perp\alpha\beta} + 1^+_{.}\tau^{\parallel\alpha\beta} == 0$	$\partial_{\chi}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\beta\chi} + \partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\chi\alpha} + \partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\alpha\beta} + 2\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta} + 2\partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\chi\alpha\beta} == \partial_{\chi}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi\beta} + \partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\alpha\chi} + \partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\beta\alpha} + 2\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta}$	3
$-2ik\,2^+_{.}\sigma^{\parallel\alpha\beta} + 2^+_{.}\tau^{\parallel\alpha\beta} == 0$	$-i(4\partial_{\delta}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi\delta} + 2\partial_{\delta}\partial^{\delta}\partial^{\beta}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi}{}_{\chi} - 3\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\beta\chi} - 3\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\alpha\chi} - 3\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\alpha\beta} + 3\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\beta\alpha} + 4i\,k^{\chi}\partial_{\epsilon}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\sigma^{\delta}{}_{\delta}{}^{\epsilon} - 6i\,k^{\chi}\partial_{\epsilon}\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\delta\beta\epsilon} - 6i\,k^{\chi}\partial_{\epsilon}\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\delta\alpha\epsilon} + 6i\,k^{\chi}\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\sigma^{\alpha\beta\delta} + 6i\,k^{\chi}\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\sigma^{\beta\alpha\delta} + 2\eta^{\alpha\beta}\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\tau(\Delta+\mathcal{K})^{\chi\delta} - 2\eta^{\alpha\beta}\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\tau(\Delta+\mathcal{K})^{\chi}{}_{\chi} - 4i\eta^{\alpha\beta}k^{\chi}\partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial_{\chi}\sigma^{\delta}{}_{\delta}{}^{\epsilon}) == 0$	5
Total expected gauge generators:		16

Massive spectrum

Massive particle

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

Massless spectrum

(No particles)

Unitarity conditions

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