PSALTer results panel

$$\mathcal{S} == \int\int\int\int (\frac{1}{6} (2 (t_{1} - 2 t_{3}) \mathcal{A}^{\alpha\iota}{}_{\alpha} \mathcal{A}_{\iota}{}^{\theta}{}_{\theta} + 6 \mathcal{A}^{\alpha\beta\chi} \sigma_{\alpha\beta\chi} + 6 f^{\alpha\beta} \tau (\Delta+\mathcal{K})_{\alpha\beta} - 4 t_{1} \mathcal{A}_{\alpha}{}^{\theta}{}_{\theta} \partial_{\iota} f^{\alpha\iota} + 8 t_{3} \mathcal{A}_{\alpha}{}^{\theta}{}_{\theta} \partial_{\iota} f^{\alpha\iota} + 4 t_{1} \mathcal{A}_{\iota}{}^{\theta}{}_{\theta} \partial^{\iota} f^{\alpha}{}_{\alpha} - 8 t_{3} \mathcal{A}_{\iota}{}^{\theta}{}_{\theta} \partial^{\iota} f^{\alpha}{}_{\alpha} - 2 t_{1} \partial_{\iota} f^{\theta}{}_{\theta} \partial^{\iota} f^{\alpha}{}_{\alpha} + 4 t_{3} \partial_{\iota} f^{\theta}{}_{\theta} \partial^{\iota} f^{\alpha}{}_{\alpha} - 2 t_{1} \partial_{\iota} f^{\alpha\iota} \partial_{\theta} f_{\alpha}{}^{\theta} + 4 t_{3} \partial_{\iota} f^{\alpha\iota} \partial_{\theta} f_{\alpha}{}^{\theta} + 4 t_{1} \partial^{\iota} f^{\alpha}{}_{\alpha} \partial_{\theta} f_{\iota}{}^{\theta} - 8 t_{3} \partial^{\iota} f^{\alpha}{}_{\alpha} \partial_{\theta} f_{\iota}{}^{\theta} + 8 r_{2} \partial_{\beta} \mathcal{A}_{\alpha\iota\theta} \partial^{\theta} \mathcal{A}^{\alpha\beta\iota} - 4 r_{2} \partial_{\beta} \mathcal{A}_{\alpha\theta\iota} \partial^{\theta} \mathcal{A}^{\alpha\beta\iota} + 4 r_{2} \partial_{\beta} \mathcal{A}_{\iota\theta\alpha} \partial^{\theta} \mathcal{A}^{\alpha\beta\iota} - 2 r_{2} \partial_{\iota} \mathcal{A}_{\alpha\beta\theta} \partial^{\theta} \mathcal{A}^{\alpha\beta\iota} + 2 r_{2} \partial_{\theta} \mathcal{A}_{\alpha\beta\iota} \partial^{\theta} \mathcal{A}^{\alpha\beta\iota} - 4 r_{2} \partial_{\theta} \mathcal{A}_{\alpha\iota\beta} \partial^{\theta} \mathcal{A}^{\alpha\beta\iota} - 6 t_{1} \partial_{\alpha} f_{\iota\theta} \partial^{\theta} f^{\alpha\iota} - 3 t_{1} \partial_{\alpha} f_{\theta\iota} \partial^{\theta} f^{\alpha\iota} + 3 t_{1} \partial_{\iota} f_{\alpha\theta} \partial^{\theta} f^{\alpha\iota} + 3 t_{1} \partial_{\theta} f_{\alpha\iota} \partial^{\theta} f^{\alpha\iota} + 3 t_{1} \partial_{\theta} f_{\iota\alpha} \partial^{\theta} f^{\alpha\iota} + 6 t_{1} \mathcal{A}_{\alpha\theta\iota} (\mathcal{A}^{\alpha\iota\theta} + 2 \partial^{\theta} f^{\alpha\iota}))) [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_{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	$k^2 r_{2} - t_{1}$

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

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

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

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

Massive spectrum

Massive particle

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

Massless spectrum

(No particles)

Unitarity conditions

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