PSALTer results panel

$$\mathcal{S} == \int\int\int\int (\frac{1}{6}(6 t_{.1}\, \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(\Delta+\mathcal{K})_{\alpha\beta} - 12 t_{.1}\, \mathcal{A}_{\alpha}{}^{\theta}{}_{\theta}\, \partial_{\prime} f^{\alpha\prime} - 12 r_{.1}\, \partial_{\beta}\mathcal{A}_{\prime}{}^{\theta}{}_{\theta}\partial^{\prime}\mathcal{A}^{\alpha\beta}{}_{\alpha} + 12 r_{.1}\, \partial_{\prime}\mathcal{A}_{\beta}{}^{\theta}{}_{\theta}\partial^{\prime}\mathcal{A}^{\alpha\beta}{}_{\alpha} + 12 t_{.1}\, \mathcal{A}_{\prime}{}^{\theta}{}_{\theta}\, \partial^{\prime} f^{\alpha}{}_{\alpha} - 6 t_{.1}\, \partial_{\prime} f^{\theta}{}_{\theta} + \partial^{\prime} f^{\alpha}{}_{\alpha} + 12 r_{.1}\, \partial_{\alpha}\mathcal{A}^{\alpha\beta\prime}\partial_{\theta}\mathcal{A}_{\beta}{}^{\theta}{}_{\prime} - 24 r_{.1}\, \partial^{\prime}\mathcal{A}^{\alpha\beta}{}_{\alpha}\partial_{\theta}\mathcal{A}_{\beta}{}^{\theta}{}_{\prime} - 12 r_{.1}\, \partial_{\alpha}\mathcal{A}^{\alpha\beta\prime}\partial_{\theta}\mathcal{A}_{\prime}{}^{\theta}{}_{\beta} + 24 r_{.1}\, \partial^{\prime}\mathcal{A}^{\alpha\beta}{}_{\alpha}\partial_{\theta}\mathcal{A}_{\prime}{}^{\theta}{}_{\beta} - 6 t_{.1}\, \partial_{\prime} f^{\alpha\prime}\partial_{\theta} f_{\alpha}{}^{\theta} + 12 t_{.1}\, \partial^{\prime} f^{\alpha}{}_{\alpha}\partial_{\theta} f_{\prime}{}^{\theta} - 8 r_{.1}\, \partial_{\beta}\mathcal{A}_{\alpha\prime\theta}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} + 4 r_{.1}\, \partial_{\beta}\mathcal{A}_{\alpha\theta\prime}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} - 16 r_{.1}\, \partial_{\beta}\mathcal{A}_{\prime\theta\alpha}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} - 4 r_{.1}\, \partial_{\prime}\mathcal{A}_{\alpha\beta\theta}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} + 4 r_{.1}\, \partial_{\theta}\mathcal{A}_{\alpha\beta\prime}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} + 4 r_{.1}\, \partial_{\theta}\mathcal{A}_{\alpha\prime\beta}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} + 4 t_{.1}\, \mathcal{A}_{\prime\theta\alpha}\, \partial^{\theta} f^{\alpha\prime} + 4 t_{.2}\, \mathcal{A}_{\prime\theta\alpha}\, \partial^{\theta} f^{\alpha\prime} - 4 t_{.1}\, \partial_{\alpha} f_{\prime\theta}\partial^{\theta} f^{\alpha\prime} + 2 t_{.2}\, \partial_{\alpha} f_{\prime\theta}\partial^{\theta} f^{\alpha\prime} - 4 t_{.1}\, \partial_{\alpha} f_{\theta\prime}\partial^{\theta} f^{\alpha\prime} - t_{.2}\, \partial_{\alpha} f_{\theta\prime}\partial^{\theta} f^{\alpha\prime} + 2 t_{.1}\, \partial_{\prime} f_{\alpha\theta}\partial^{\theta} f^{\alpha\prime} - t_{.2}\, \partial_{\prime} f_{\alpha\theta}\partial^{\theta} f^{\alpha\prime} + 4 t_{.1}\, \partial_{\theta} f_{\alpha\prime}\partial^{\theta} f^{\alpha\prime} + t_{.2}\, \partial_{\theta} f_{\alpha\prime}\partial^{\theta} f^{\alpha\prime} + 2 t_{.1}\, \partial_{\theta} f_{\prime\alpha}\partial^{\theta} f^{\alpha\prime} - t_{.2}\, \partial_{\theta} f_{\prime\alpha}\partial^{\theta} f^{\alpha\prime} + 2 (t_{.1} + t_{.2})\, \mathcal{A}_{\alpha\prime\theta}\, (\mathcal{A}^{\alpha\prime\theta} + 2\partial^{\theta} f^{\alpha\prime}) + 2\, \mathcal{A}_{\alpha\theta\prime}\, ((t_{.1} - 2 t_{.2})\, \mathcal{A}^{\alpha\prime\theta} + 2 (2 t_{.1} - t_{.2})\partial^{\theta} f^{\alpha\prime}))) [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	$t_{.2}$

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

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	$\frac{1}{t_{.2}}$

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

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

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

Massive spectrum

Massive particle

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

Massless spectrum

(No particles)

Unitarity conditions

$r_{.1} < 0\ \&\&\ t_{.1} > 0$