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} + 8 r_{2} \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} - 4 r_{2} \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_{2} \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} - 2 r_{2} \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} + 2 r_{2} \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 r_{2} \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	$k^{2} r_{2} + t_{2}$

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

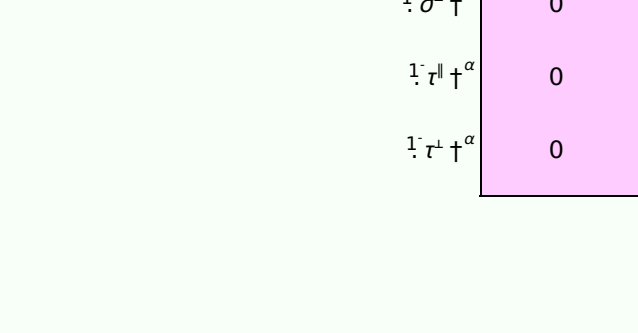
	$1^{+}_{.}\sigma^{\parallel}{}_{\alpha\beta}$	$1^{+}_{.}\sigma^{\perp}{}_{\alpha\beta}$	$1^{+}_{.}\tau^{\parallel}{}_{\alpha\beta}$	$1^{-}_{.}\sigma^{\parallel}{}_{\alpha}$	$1^{-}_{.}\sigma^{\perp}{}_{\alpha}$	$1^{-}_{.}\tau^{\parallel}{}_{\alpha}$	$1^{-}_{.}\tau^{\perp}{}_{\alpha}$
$1^{+}_{.}\sigma^{\parallel}\dagger^{\alpha\beta}$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

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

Massive spectrum



Massive particle

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

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

$r_{2} < 0 \,\&\&\, t_{2} > 0 \,\&\&\, r_{1} < 0 \,\&\&\, t_{1} > 0$