PSALTer results panel

$$\mathcal{S} == \int\int\int\int (\frac{1}{6}(-4 t_{.3}\, \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} + 8 t_{.3}\, \mathcal{A}_{\alpha}{}^{\theta}{}_{\theta}\, \partial_{\prime} f^{\alpha\prime} - 3 r_{.3}\, \partial_{\beta}\mathcal{A}_{\prime}{}^{\theta}{}_{\theta}\partial^{\prime}\mathcal{A}^{\alpha\beta}{}_{\alpha} - 3 r_{.3}\, \partial_{\prime}\mathcal{A}_{\beta}{}^{\theta}{}_{\theta}\partial^{\prime}\mathcal{A}^{\alpha\beta}{}_{\alpha} - 8 t_{.3}\, \mathcal{A}_{\prime}{}^{\theta}{}_{\theta}\, \partial^{\prime} f^{\alpha}{}_{\alpha} + 4 t_{.3}\, \partial_{\prime} f^{\theta}{}_{\theta}\partial^{\prime} f^{\alpha}{}_{\alpha} - 3 r_{.3}\, \partial_{\alpha}\mathcal{A}^{\alpha\beta\prime}\partial_{\theta}\mathcal{A}_{\beta}{}^{\theta}{}_{\prime} + 6 r_{.3}\, \partial^{\prime}\mathcal{A}^{\alpha\beta}{}_{\alpha}\partial_{\theta}\mathcal{A}_{\beta}{}^{\theta}{}_{\prime} - 3 r_{.3}\, \partial_{\alpha}\mathcal{A}^{\alpha\beta\prime}\partial_{\theta}\mathcal{A}_{\prime}{}^{\theta}{}_{\beta} + 6 r_{.3}\, \partial^{\prime}\mathcal{A}^{\alpha\beta}{}_{\alpha}\partial_{\theta}\mathcal{A}_{\prime}{}^{\theta}{}_{\beta} + 4 t_{.3}\, \partial_{\prime} f^{\alpha\prime}\partial_{\theta} f_{\alpha}{}^{\theta} - 8 t_{.3}\, \partial^{\prime} f^{\alpha}{}_{\alpha}\partial_{\theta} f_{\prime}{}^{\theta} + 8 r_{.2}\, \partial_{\beta}\mathcal{A}_{\alpha\prime\theta}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} - 4 r_{.2}\, \partial_{\beta}\mathcal{A}_{\alpha\theta\prime}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} + 4 r_{.2}\, \partial_{\beta}\mathcal{A}_{\prime\theta\alpha}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} - 24 r_{.3}\, \partial_{\beta}\mathcal{A}_{\prime\theta\alpha}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} - 2 r_{.2}\, \partial_{\prime}\mathcal{A}_{\alpha\beta\theta}\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_{.2}\, \partial_{\theta}\mathcal{A}_{\alpha\prime\beta}\partial^{\theta}\mathcal{A}^{\alpha\beta\prime} + 6 r_{.5}\, \partial_{\prime}\mathcal{A}_{\theta}{}^{\kappa}{}_{\kappa}\partial^{\theta}\mathcal{A}^{\alpha\prime}{}_{\alpha} - 6 r_{.5}\, \partial_{\theta}\mathcal{A}_{\prime}{}^{\kappa}{}_{\kappa}\partial^{\theta}\mathcal{A}^{\alpha\prime}{}_{\alpha} + 4 t_{.2}\, \mathcal{A}_{\prime\theta\alpha}\, \partial^{\theta} f^{\alpha\prime} + 2 t_{.2}\, \partial_{\alpha} f_{\prime\theta}\partial^{\theta} f^{\alpha\prime} - t_{.2}\, \partial_{\alpha} f_{\theta\prime}\partial^{\theta} f^{\alpha\prime} - t_{.2}\, \partial_{\prime} f_{\alpha\theta}\partial^{\theta} f^{\alpha\prime} + t_{.2}\, \partial_{\theta} f_{\alpha\prime}\partial^{\theta} f^{\alpha\prime} - t_{.2}\, \partial_{\theta} f_{\prime\alpha}\partial^{\theta} f^{\alpha\prime} - 4 t_{.2}\, \mathcal{A}_{\alpha\theta\prime}\, (\mathcal{A}^{\alpha\prime\theta} + \partial^{\theta} f^{\alpha\prime}) + 2 t_{.2}\, \mathcal{A}_{\alpha\prime\theta}\, (\mathcal{A}^{\alpha\prime\theta} + 2\,\partial^{\theta} f^{\alpha\prime}) - 6 r_{.5}\, \partial_{\alpha}\mathcal{A}^{\alpha\prime\theta}\partial_{\kappa}\mathcal{A}_{\prime}{}^{\kappa}{}_{\theta} + 12 r_{.5}\, \partial^{\theta}\mathcal{A}^{\alpha\prime}{}_{\alpha}\partial_{\kappa}\mathcal{A}_{\prime}{}^{\kappa}{}_{\theta} + 6 r_{.5}\, \partial_{\alpha}\mathcal{A}^{\alpha\prime\theta}\partial_{\kappa}\mathcal{A}_{\theta}{}^{\kappa}{}_{\prime} - 12 r_{.5}\, \partial^{\theta}\mathcal{A}^{\alpha\prime}{}_{\alpha}\partial_{\kappa}\mathcal{A}_{\theta}{}^{\kappa}{}_{\prime}))[t, x, y, z]\, dz\, dy\, dx\, dt$$

Wave operator

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

	$1^+_{.}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$1^+_{.}\mathcal{A}^{\perp}{}_{\alpha\beta}$	$1^+_{.}f^{\parallel}{}_{\alpha\beta}$	$1^-_{.}\mathcal{A}^{\parallel}{}_{\alpha}$	$1^-_{.}\mathcal{A}^{\perp}{}_{\alpha}$	$1^-_{.}f^{\parallel}{}_{\alpha}$	$1^-_{.}f^{\perp}{}_{\alpha}$
$1^+_{.}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$k^2(2r_{.3}+r_{.5}) + \frac{2t_{.2}}{3}$	$\frac{\sqrt{2}\,t_{.2}}{3}$	$\frac{1}{3} i\sqrt{2}\,k t_{.2}$	0	0	0	0
$1^+_{.}\mathcal{A}^{\perp}\,\dagger^{\alpha\beta}$	$\frac{\sqrt{2}\,t_{.2}}{3}$	$\frac{t_{.2}}{3}$	$\frac{ik t_{.2}}{3}$	0	0	0	0
$1^+_{.}f^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{1}{3} i\sqrt{2}\,k t_{.2}$	$-\frac{1}{3} ik t_{.2}$	$\frac{k^2 t_{.2}}{3}$	0	0	0	0
$1^-_{.}\mathcal{A}^{\parallel}\,\dagger^{\alpha}$	0	0	0	$k^2(\frac{r_{.3}}{2}+r_{.5}) + \frac{2t_{.3}}{3}$	$-\frac{\sqrt{2}\,t_{.3}}{3}$	0	$-\frac{2}{3} ik t_{.3}$
$1^-_{.}\mathcal{A}^{\perp}\,\dagger^{\alpha}$	0	0	0	$-\frac{\sqrt{2}\,t_{.3}}{3}$	$\frac{t_{.3}}{3}$	0	$\frac{1}{3} i\sqrt{2}\,k t_{.3}$
$1^-_{.}f^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_{.}f^{\perp}\,\dagger^{\alpha}$	0	0	0	$\frac{2ik t_{.3}}{3}$	$-\frac{1}{3} i\sqrt{2}\,k t_{.3}$	0	$\frac{2k^2 t_{.3}}{3}$

	$2^+_{.}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$2^+_{.}f^{\parallel}{}_{\alpha\beta}$	$2^-_{.}\mathcal{A}^{\parallel}{}_{\alpha\beta\chi}$
$2^+_{.}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{3k^2 r_{.3}}{2}$	0	0
$2^+_{.}f^{\parallel}\,\dagger^{\alpha\beta}$	0	0	0
$2^-_{.}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	0

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	$\frac{1}{k^2 r_{.2} + t_{.2}}$

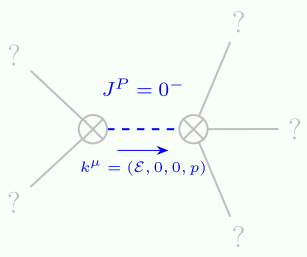
	$1^+_{.}\sigma^{\parallel}{}_{\alpha\beta}$	$1^+_{.}\sigma^{\perp}{}_{\alpha\beta}$	$1^+_{.}\tau^{\parallel}{}_{\alpha\beta}$	$1^-_{.}\sigma^{\parallel}{}_{\alpha}$	$1^-_{.}\sigma^{\perp}{}_{\alpha}$	$1^-_{.}\tau^{\parallel}{}_{\alpha}$	$1^-_{.}\tau^{\perp}{}_{\alpha}$
$1^+_{.}\sigma^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{1}{k^2(2r_{.3}+r_{.5})}$	$-\frac{\sqrt{2}}{k^2(1+k^2)(2r_{.3}+r_{.5})}$	$-\frac{i\sqrt{2}}{k(1+k^2)(2r_{.3}+r_{.5})}$	0	0	0	0
$1^+_{.}\sigma^{\perp}\,\dagger^{\alpha\beta}$	$-\frac{\sqrt{2}}{k^2(1+k^2)(2r_{.3}+r_{.5})}$	$\frac{3k^2(2r_{.3}+r_{.5})+2t_{.2}}{(k+k^3)^2(2r_{.3}+r_{.5})t_{.2}}$	$\frac{i(3k^2(2r_{.3}+r_{.5})+2t_{.2})}{k(1+k^2)^2(2r_{.3}+r_{.5})t_{.2}}$	0	0	0	0
$1^+_{.}\tau^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{i\sqrt{2}}{k(1+k^2)(2r_{.3}+r_{.5})}$	$-\frac{i(3k^2(2r_{.3}+r_{.5})+2t_{.2})}{k(1+k^2)^2(2r_{.3}+r_{.5})t_{.2}}$	$\frac{3k^2(2r_{.3}+r_{.5})+2t_{.2}}{(1+k^2)^2(2r_{.3}+r_{.5})t_{.2}}$	0	0	0	0
$1^-_{.}\sigma^{\parallel}\,\dagger^{\alpha}$	0	0	0	$\frac{2}{k^2(r_{.3}+2r_{.5})}$	$\frac{2\sqrt{2}}{k^2(1+2k^2)(r_{.3}+2r_{.5})}$	0	$\frac{4i}{k(1+2k^2)(r_{.3}+2r_{.5})}$
$1^-_{.}\sigma^{\perp}\,\dagger^{\alpha}$	0	0	0	$\frac{2\sqrt{2}}{k^2(1+2k^2)(r_{.3}+2r_{.5})}$	$\frac{3k^2(r_{.3}+2r_{.5})+4t_{.3}}{(k+2k^3)^2(r_{.3}+2r_{.5})t_{.3}}$	0	$\frac{i\sqrt{2}(3k^2(r_{.3}+2r_{.5})+4t_{.3})}{k(1+2k^2)^2(r_{.3}+2r_{.5})t_{.3}}$
$1^-_{.}\tau^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_{.}\tau^{\perp}\,\dagger^{\alpha}$	0	0	0	$-\frac{4i}{k(1+2k^2)(r_{.3}+2r_{.5})}$	$-\frac{i\sqrt{2}(3k^2(r_{.3}+2r_{.5})+4t_{.3})}{k(1+2k^2)^2(r_{.3}+2r_{.5})t_{.3}}$	0	$\frac{6k^2(r_{.3}+2r_{.5})+8t_{.3}}{(1+2k^2)^2(r_{.3}+2r_{.5})t_{.3}}$

	$2^+_{.}\sigma^{\parallel}{}_{\alpha\beta}$	$2^+_{.}\tau^{\parallel}{}_{\alpha\beta}$	$2^-_{.}\sigma^{\parallel}{}_{\alpha\beta\chi}$
$2^+_{.}\sigma^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{2}{3k^2 r_{.3}}$	0	0
$2^+_{.}\tau^{\parallel}\,\dagger^{\alpha\beta}$	0	0	0
$2^-_{.}\sigma^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	0

Source constraints

Spin-parity form	Covariant form	Multiplicities
$0^+_{.}\tau^{\perp} == 0$	$\partial_{\beta}\partial_{\alpha}\tau(\Delta+\mathcal{K})^{\alpha\beta} == 0$	1
$-2ik\,0^+_{.}\sigma^{\parallel} + 0^+_{.}\tau^{\parallel} == 0$	$\partial_{\beta}\partial_{\alpha}\tau(\Delta+\mathcal{K})^{\alpha\beta} == \partial_{\beta}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\alpha}{}_{\alpha} + 2\,\partial_{\chi}\partial^{\chi}\partial_{\beta}\sigma^{\alpha\ \ \beta}_{\ \alpha}$	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
$2^-_{.}\sigma^{\parallel\,\alpha\beta\chi} == 0$	$3\,\partial_{\epsilon}\partial_{\delta}\partial^{\chi}\partial^{\alpha}\sigma^{\delta\beta\epsilon} + 3\,\partial_{\epsilon}\partial^{\epsilon}\partial^{\chi}\partial^{\alpha}\sigma^{\delta\beta}_{\ \ \delta} + 2\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\beta}\sigma^{\alpha\chi\delta} + 4\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\beta}\sigma^{\chi\alpha\delta} + 2\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\beta}\sigma^{\delta\alpha\chi} + 2\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\chi}\sigma^{\beta\alpha\delta} + 4\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\chi}\sigma^{\delta\alpha\beta} + 2\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\sigma^{\alpha\beta\chi} + 3\,\eta^{\beta\chi}\,\partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial^{\alpha}\sigma^{\delta}_{\ \delta}{}^{\epsilon} + 3\,\eta^{\alpha\chi}\,\partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial_{\delta}\sigma^{\delta\beta\epsilon} + 3\,\eta^{\beta\chi}\,\partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial^{\epsilon}\sigma^{\delta\alpha}_{\ \ \delta} == 3\,\partial_{\epsilon}\partial_{\delta}\partial^{\chi}\partial^{\beta}\sigma^{\delta\alpha\epsilon} + 3\,\partial_{\epsilon}\partial^{\epsilon}\partial^{\chi}\partial^{\beta}\sigma^{\delta\alpha}_{\ \ \delta} + 2\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\alpha}\sigma^{\beta\chi\delta} + 4\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\alpha}\sigma^{\chi\beta\delta} + 2\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\sigma^{\alpha\beta\chi} + 2\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\chi}\sigma^{\alpha\beta\delta} + 2\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\sigma^{\alpha\beta\chi} + 3\,\eta^{\alpha\chi}\,\partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial^{\beta}\sigma^{\delta}_{\ \delta}{}^{\epsilon} + 3\,\eta^{\beta\chi}\,\partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial_{\delta}\sigma^{\delta\alpha\epsilon} + 3\,\eta^{\alpha\chi}\,\partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial^{\epsilon}\sigma^{\delta\beta}_{\ \ \delta}$	5
$2^+_{.}\tau^{\parallel\,\alpha\beta} == 0$	$4\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi\delta} + 2\,\partial_{\delta}\partial^{\delta}\partial^{\beta}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi}{}_{\chi} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\alpha\beta} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\beta\alpha} + 2\,\eta^{\alpha\beta}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\tau(\Delta+\mathcal{K})^{\chi\delta} == 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\beta\chi} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\alpha\chi} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\chi\alpha} + 2\,\eta^{\alpha\beta}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\tau(\Delta+\mathcal{K})^{\chi}{}_{\chi}$	5
Total expected gauge generators:			21

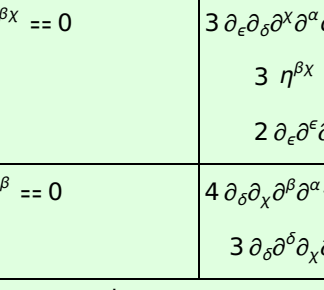
Massive spectrum



Massive particle

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

Massless spectrum



Massless particle

Pole residue:	$-\frac{14}{r_{.3}} + \frac{57}{2r_{.3}+r_{.5}} - \frac{216}{r_{.3}+2r_{.5}} > 0$
Polarisations:	2

Unitarity conditions

$$r_{.2} < 0\ \&\&\ t_{.2} > 0\ \&\&\ ((r_{.3} < 0\ \&\&\ (r_{.5} < -\frac{r_{.3}}{2}\ ||\ r_{.5} > -2\,r_{.3}))\ ||\ (r_{.3} > 0\ \&\&\ -2\,r_{.3} < r_{.5} < -\frac{r_{.3}}{2}))$$