PSALTer results panel

$$S == \int\int\int\int \left(\frac{1}{6}\left(2\left(t_{1.} - 2\,t_{3.}\right)\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} - 4\,t_{1.}\,\mathcal{A}_{\alpha}{}^{\theta}{}_{\theta}\,\partial_{\prime}f^{\alpha\prime} + 8\,t_{3.}\,\mathcal{A}_{\alpha}{}^{\theta}{}_{\theta}\,\partial_{\prime}f^{\alpha\prime} + 4\,t_{1.}\,\mathcal{A}_{\prime}{}^{\theta}{}_{\theta}\,\partial^{\prime}f^{\alpha}{}_{\alpha} - 8\,t_{3.}\,\mathcal{A}_{\prime}{}^{\theta}{}_{\theta}\,\partial^{\prime}f^{\alpha}{}_{\alpha} - 2\,t_{1.}\,\partial_{\prime}f^{\theta}{}_{\theta}\,\partial^{\prime}f^{\alpha}{}_{\alpha} + 4\,t_{3.}\,\partial_{\prime}f^{\theta}{}_{\theta}\,\partial^{\prime}f^{\alpha}{}_{\alpha} - 2\,t_{1.}\,\partial_{\prime}f^{\alpha\prime}\,\partial_{\theta}f_{\alpha}{}^{\theta} + 4\,t_{3.}\,\partial_{\prime}f^{\alpha\prime}\,\partial_{\theta}f_{\alpha}{}^{\theta} + 4\,t_{1.}\,\partial^{\prime}f^{\alpha}{}_{\alpha}\,\partial_{\theta}f_{\prime}{}^{\theta} - 8\,t_{3.}\,\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} + 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} - 6\,t_{1.}\,\partial_{\alpha}f_{\prime\theta}\,\partial^{\theta}f^{\alpha\prime} - 3\,t_{1.}\,\partial_{\alpha}f_{\theta\prime}\,\partial^{\theta}f^{\alpha\prime} + 3\,t_{1.}\,\partial_{\prime}f_{\alpha\theta}\,\partial^{\theta}f^{\alpha\prime} + 3\,t_{1.}\,\partial_{\theta}f_{\alpha\prime}\,\partial^{\theta}f^{\alpha\prime} + 3\,t_{1.}\,\partial_{\theta}f_{\prime\alpha}\,\partial^{\theta}f^{\alpha\prime} + 6\,t_{1.}\,\mathcal{A}_{\alpha\theta\prime}\left(\mathcal{A}^{\alpha\prime\theta} + 2\,\partial^{\theta}f^{\alpha\prime}\right) - 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}\right)\Big)[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
$0^+_{.}f^{\parallel}\,\dagger$	$i\sqrt{2}\,k\,t_{3.}$	$2\,k^2\,t_{3.}$	0	0
$0^+_{.}f^{\perp}\,\dagger$	0	0	0	0
$0^-_{.}\mathcal{A}^{\parallel}\,\dagger$	0	0	0	$-t_{1.}$

	$1^+_{.}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$1^+_{.}\mathcal{A}^{\perp}{}_{\alpha\beta}$	$1^+_{.}f^{\parallel}{}_{\alpha\beta}$	$1^-_{.}\mathcal{A}^{\parallel}{}_{\alpha}$	$1^-_{.}\mathcal{A}^{\perp}{}_{\alpha}$	$1^-_{.}f^{\parallel}{}_{\alpha}$	$1^-_{.}f^{\perp}{}_{\alpha}$
$1^+_{.}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$k^2\left(2\,r_{1.}+r_{5.}\right)-\frac{t_{1.}}{2}$	$-\frac{t_{1.}}{\sqrt{2}}$	$-\frac{i\,k\,t_{1.}}{\sqrt{2}}$	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	$\frac{1}{6}\left(6\,k^2\left(r_{1.}+r_{5.}\right)+t_{1.}+4\,t_{3.}\right)$	$\frac{t_{1.}-2\,t_{3.}}{3\sqrt{2}}$	0	$\frac{1}{3}\,i\,k\left(t_{1.}-2\,t_{3.}\right)$
$1^-_{.}\mathcal{A}^{\perp}\,\dagger^{\alpha}$	0	0	0	$\frac{t_{1.}-2\,t_{3.}}{3\sqrt{2}}$	$\frac{t_{1.}+t_{3.}}{3}$	0	$\frac{1}{3}\,i\sqrt{2}\,k\left(t_{1.}+t_{3.}\right)$
$1^-_{.}f^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_{.}f^{\perp}\,\dagger^{\alpha}$	0	0	0	$-\frac{1}{3}\,i\,k\left(t_{1.}-2\,t_{3.}\right)$	$-\frac{1}{3}\,i\sqrt{2}\,k\left(t_{1.}+t_{3.}\right)$	0	$\frac{2}{3}\,k^2\left(t_{1.}+t_{3.}\right)$

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

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

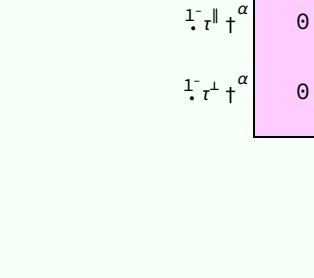
	$1^+_{.}\sigma^{\parallel}{}_{\alpha\beta}$	$1^+_{.}\sigma^{\perp}{}_{\alpha\beta}$	$1^+_{.}\tau^{\parallel}{}_{\alpha\beta}$	$1^-_{.}\sigma^{\parallel}{}_{\alpha}$	$1^-_{.}\sigma^{\perp}{}_{\alpha}$	$1^-_{.}\tau^{\parallel}{}_{\alpha}$	$1^-_{.}\tau^{\perp}{}_{\alpha}$
$1^+_{.}\sigma^{\parallel}\,\dagger^{\alpha\beta}$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

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

Source constraints

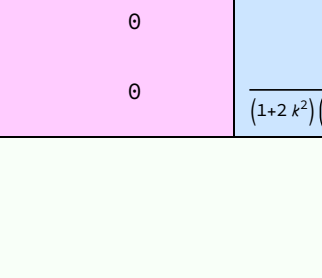
Spin-parity form	Covariant form	Multiplicities
$0^+_{.}\tau^{\perp} == 0$	$\partial_{\beta}\partial_{\alpha\tau}\,(\Delta+\mathcal{K})^{\alpha\beta} == 0$	1
$-2\,i\,k\,0^+_{.}\sigma^{\parallel} + 0^+_{.}\tau^{\parallel} == 0$	$\partial_{\beta}\partial_{\alpha\tau}\,(\Delta+\mathcal{K})^{\alpha\beta}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

Massive spectrum



Massive particle

Pole residue:	$-\frac{3\,(-2\,t_{1.}\,t_{3.}\,(t_{1.}+t_{3.})+r_{1.}\,(t_{1.}^2+2\,t_{3.}^2)+r_{5.}\,(t_{1.}^2+2\,t_{3.}^2))}{2\,(r_{1.}+r_{5.})\,(t_{1.}+t_{3.})\,(-3\,t_{1.}\,t_{3.}+r_{1.}\,(t_{1.}+t_{3.})+r_{5.}\,(t_{1.}+t_{3.}))} > 0$
Square mass:	$-\frac{3\,t_{1.}\,t_{3.}}{2\,(r_{1.}+r_{5.})\,(t_{1.}+t_{3.})} > 0$
Spin:	1
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

$$r_{1.} < 0\;\&\&\left(\left(t_{3.} < 0\;\&\&\;0 < t_{1.} < -t_{3.}\;\&\&\;r_{5.} < -r_{1.}\right) \| \left(t_{3.} > 0\;\&\&\;t_{1.} > 0\;\&\&\;r_{5.} < -r_{1.}\right)\right)$$