PSALTer results panel

$$\mathcal{S} == \int\int\int\int \left(\frac{1}{3}\left(3\,t_1\,\mathcal{A}^{\alpha\,\prime}{}_{\alpha}\,\mathcal{A}_{\prime}{}^{\theta}{}_{\theta} + 3\,\mathcal{A}^{\alpha\beta\chi}\,\sigma_{\alpha\beta\chi} + 3\,f^{\alpha\beta}\,\tau\,(\Delta+\mathcal{K})_{\alpha\beta} - 6\,t_1\,\mathcal{A}_{\alpha}{}^{\theta}{}_{\theta}\,\partial_{\prime} f^{\alpha\,\prime} + 6\,t_1\,\mathcal{A}_{\prime}{}^{\theta}{}_{\theta}\,\partial^{\prime} f^{\alpha}{}_{\alpha} - 3\,t_1\,\partial_{\prime} f^{\theta}{}_{\theta}\,\partial^{\prime} f^{\alpha}{}_{\alpha} - 3\,t_1\,\partial_{\prime} f^{\alpha\,\prime}\,\partial_{\theta} f_{\alpha}{}^{\theta} + 6\,t_1\,\partial^{\prime} f^{\alpha}{}_{\alpha}\,\partial_{\theta} f_{\prime}{}^{\theta} - 4\,r_1\,\partial_{\beta}\mathcal{A}_{\alpha\,\prime\,\theta}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\,\prime} + 2\,r_1\,\partial_{\beta}\mathcal{A}_{\alpha\theta\,\prime}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\,\prime} - 8\,r_1\,\partial_{\beta}\mathcal{A}_{\prime\,\theta\alpha}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\,\prime} - 2\,r_1\,\partial_{\prime}\mathcal{A}_{\alpha\beta\theta}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\,\prime} + 2\,r_1\,\partial_{\theta}\mathcal{A}_{\alpha\beta\,\prime}\,\partial^{\theta}\mathcal{A}^{\alpha\beta\,\prime} + 2\,r_1\,\partial_{\theta}\mathcal{A}_{\alpha\,\prime\,\beta}\,\partial^{\theta}\mathcal{A}^{\alpha\,\prime}{}_{\alpha} + 3\,r_5\,\partial_{\prime}\mathcal{A}_{\theta}{}^{\kappa}{}_{\kappa}\,\partial^{\theta}\mathcal{A}^{\alpha\,\prime}{}_{\alpha} - 3\,r_5\,\partial_{\theta}\mathcal{A}_{\prime}{}^{\kappa}{}_{\kappa}\,\partial^{\theta}\mathcal{A}^{\alpha\,\prime}{}_{\alpha} + 2\,t_1\,\mathcal{A}_{\prime\theta\alpha}\,\partial^{\theta} f^{\alpha\,\prime} - 2\,t_1\,\partial_{\alpha} f_{\prime\,\theta}\,\partial^{\theta} f^{\alpha\,\prime} - 2\,t_1\,\partial_{\alpha} f_{\theta\,\prime}\,\partial^{\theta} f^{\alpha\,\prime} + t_1\,\partial_{\prime} f_{\alpha\theta}\,\partial^{\theta} f^{\alpha\,\prime} + 2\,t_1\,\partial_{\theta} f_{\alpha\,\prime}\,\partial^{\theta} f^{\alpha\,\prime} + t_1\,\partial_{\theta} f_{\prime\,\alpha}\,\partial^{\theta} f^{\alpha\,\prime} + t_1\,\mathcal{A}_{\alpha\,\prime\,\theta}\left(\mathcal{A}^{\alpha\,\prime\,\theta} + 2\,\partial^{\theta} f^{\alpha\,\prime}\right) + t_1\,\mathcal{A}_{\alpha\theta\,\prime}\left(\mathcal{A}^{\alpha\,\prime\,\theta} + 4\,\partial^{\theta} f^{\alpha\,\prime}\right) - 3\,r_5\,\partial_{\alpha}\mathcal{A}^{\alpha\,\prime\,\theta}\,\partial_{\kappa}\mathcal{A}_{\prime}{}^{\kappa}{}_{\theta} + 6\,r_5\,\partial^{\theta}\mathcal{A}^{\alpha\,\prime}{}_{\alpha}\,\partial_{\kappa}\mathcal{A}_{\prime}{}^{\kappa}{}_{\theta} + 3\,r_5\,\partial_{\alpha}\mathcal{A}^{\alpha\,\prime\,\theta}\,\partial_{\kappa}\mathcal{A}_{\theta}{}^{\kappa}{}_{\prime} - 6\,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

	$0^+_\cdot\mathcal{A}^{\parallel}$	$0^+_\cdot f^{\parallel}$	$0^+_\cdot f^{\perp}$	$0^-_\cdot\mathcal{A}^{\parallel}$
$0^+_\cdot\mathcal{A}^{\parallel}\,\dagger$	$-t_1$	$i\sqrt{2}\,k\,t_1$	0	0
$0^+_\cdot f^{\parallel}\,\dagger$	$-i\sqrt{2}\,k\,t_1$	$-2\,k^2\,t_1$	0	0
$0^+_\cdot f^{\perp}\,\dagger$	0	0	0	0
$0^-_\cdot\mathcal{A}^{\parallel}\,\dagger$	0	0	0	0

	$1^+_\cdot\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$1^+_\cdot\mathcal{A}^{\perp}{}_{\alpha\beta}$	$1^+_\cdot f^{\parallel}{}_{\alpha\beta}$	$1^-_\cdot\mathcal{A}^{\parallel}{}_{\alpha}$	$1^-_\cdot\mathcal{A}^{\perp}{}_{\alpha}$	$1^-_\cdot f^{\parallel}{}_{\alpha}$	$1^-_\cdot f^{\perp}{}_{\alpha}$
$1^+_\cdot\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$k^2\left(2\,r_1+r_5\right)+\frac{t_1}{6}$	$-\frac{t_1}{3\sqrt{2}}$	$-\frac{i\,k\,t_1}{3\sqrt{2}}$	0	0	0	0
$1^+_\cdot\mathcal{A}^{\perp}\,\dagger^{\alpha\beta}$	$-\frac{t_1}{3\sqrt{2}}$	$\frac{t_1}{3}$	$\frac{i\,k\,t_1}{3}$	0	0	0	0
$1^+_\cdot f^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{i\,k\,t_1}{3\sqrt{2}}$	$-\frac{1}{3}\,i\,k\,t_1$	$\frac{k^2\,t_1}{3}$	0	0	0	0
$1^-_\cdot\mathcal{A}^{\parallel}\,\dagger^{\alpha}$	0	0	0	$k^2\left(r_1+r_5\right)-\frac{t_1}{2}$	$\frac{t_1}{\sqrt{2}}$	0	$i\,k\,t_1$
$1^-_\cdot\mathcal{A}^{\perp}\,\dagger^{\alpha}$	0	0	0	$\frac{t_1}{\sqrt{2}}$	0	0	0
$1^-_\cdot f^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_\cdot f^{\perp}\,\dagger^{\alpha}$	0	0	0	$-i\,k\,t_1$	0	0	0

	$2^+_\cdot\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$2^+_\cdot f^{\parallel}{}_{\alpha\beta}$	$2^-_\cdot\mathcal{A}^{\parallel}{}_{\alpha\beta\chi}$
$2^+_\cdot\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{t_1}{2}$	$-\frac{i\,k\,t_1}{\sqrt{2}}$	0
$2^+_\cdot f^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{i\,k\,t_1}{\sqrt{2}}$	$k^2\,t_1$	0
$2^-_\cdot\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	$k^2\,r_1+\frac{t_1}{2}$

Saturated propagator

	$0^+_\cdot\sigma^{\parallel}$	$0^+_\cdot\tau^{\parallel}$	$0^+_\cdot\tau^{\perp}$	$0^-_\cdot\sigma^{\parallel}$
$0^+_\cdot\sigma^{\parallel}\,\dagger$	$-\frac{1}{\left(1+2\,k^2\right)^2 t_1}$	$\frac{i\sqrt{2}\,k}{\left(1+2\,k^2\right)^2 t_1}$	0	0
$0^+_\cdot\tau^{\parallel}\,\dagger$	$-\frac{i\sqrt{2}\,k}{\left(1+2\,k^2\right)^2 t_1}$	$-\frac{2\,k^2}{\left(1+2\,k^2\right)^2 t_1}$	0	0
$0^+_\cdot\tau^{\perp}\,\dagger$	0	0	0	0
$0^-_\cdot\sigma^{\parallel}\,\dagger$	0	0	0	0

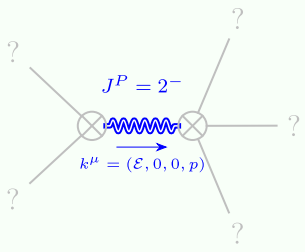
	$1^+_\cdot\sigma^{\parallel}{}_{\alpha\beta}$	$1^+_\cdot\sigma^{\perp}{}_{\alpha\beta}$	$1^+_\cdot\tau^{\parallel}{}_{\alpha\beta}$	$1^-_\cdot\sigma^{\parallel}{}_{\alpha}$	$1^-_\cdot\sigma^{\perp}{}_{\alpha}$	$1^-_\cdot\tau^{\parallel}{}_{\alpha}$	$1^-_\cdot\tau^{\perp}{}_{\alpha}$
$1^+_\cdot\sigma^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{1}{k^2\left(2\,r_1+r_5\right)}$	$\frac{1}{\sqrt{2}\,\left(k^2+k^4\right)\left(2\,r_1+r_5\right)}$	$\frac{i}{\sqrt{2}\,\left(k+k^3\right)\left(2\,r_1+r_5\right)}$	0	0	0	0
$1^+_\cdot\sigma^{\perp}\,\dagger^{\alpha\beta}$	$\frac{1}{\sqrt{2}\,\left(k^2+k^4\right)\left(2\,r_1+r_5\right)}$	$\frac{6\,k^2\left(2\,r_1+r_5\right)+t_1}{2\,(k+k^3)^2\left(2\,r_1+r_5\right)t_1}$	$\frac{i\left(6\,k^2\left(2\,r_1+r_5\right)+t_1\right)}{2\,k\,(1+k^2)^2\left(2\,r_1+r_5\right)t_1}$	0	0	0	0
$1^+_\cdot\tau^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{i}{\sqrt{2}\,\left(k+k^3\right)\left(2\,r_1+r_5\right)}$	$-\frac{i\left(6\,k^2\left(2\,r_1+r_5\right)+t_1\right)}{2\,k\,(1+k^2)^2\left(2\,r_1+r_5\right)t_1}$	$\frac{6\,k^2\left(2\,r_1+r_5\right)+t_1}{2\,(1+k^2)^2\left(2\,r_1+r_5\right)t_1}$	0	0	0	0
$1^-_\cdot\sigma^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	$\frac{\sqrt{2}}{t_1+2\,k^2\,t_1}$	0	$\frac{2\,i\,k}{t_1+2\,k^2\,t_1}$
$1^-_\cdot\sigma^{\perp}\,\dagger^{\alpha}$	0	0	0	$\frac{\sqrt{2}}{t_1+2\,k^2\,t_1}$	$\frac{-2\,k^2\left(r_1+r_5\right)+t_1}{\left(t_1+2\,k^2\,t_1\right)^2}$	0	$-\frac{i\sqrt{2}\,k\left(2\,k^2\left(r_1+r_5\right)-t_1\right)}{\left(t_1+2\,k^2\,t_1\right)^2}$
$1^-_\cdot\tau^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_\cdot\tau^{\perp}\,\dagger^{\alpha}$	0	0	0	$-\frac{2\,i\,k}{t_1+2\,k^2\,t_1}$	$\frac{i\sqrt{2}\,k\left(2\,k^2\left(r_1+r_5\right)-t_1\right)}{\left(t_1+2\,k^2\,t_1\right)^2}$	0	$\frac{-4\,k^4\left(r_1+r_5\right)+2\,k^2\,t_1}{\left(t_1+2\,k^2\,t_1\right)^2}$

	$2^+_\cdot\sigma^{\parallel}{}_{\alpha\beta}$	$2^+_\cdot\tau^{\parallel}{}_{\alpha\beta}$	$2^-_\cdot\sigma^{\parallel}{}_{\alpha\beta\chi}$
$2^+_\cdot\sigma^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{2}{\left(1+2\,k^2\right)^2 t_1}$	$-\frac{2\,i\sqrt{2}\,k}{\left(1+2\,k^2\right)^2 t_1}$	0
$2^+_\cdot\tau^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{2\,i\sqrt{2}\,k}{\left(1+2\,k^2\right)^2 t_1}$	$\frac{4\,k^2}{\left(1+2\,k^2\right)^2 t_1}$	0
$2^-_\cdot\sigma^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	$\frac{2}{2\,k^2\,r_1+t_1}$

Source constraints

Spin-parity form	Covariant form	Multiplicities
$0^-_\cdot\sigma^{\parallel} == 0$	$\epsilon\,\eta_{\alpha\beta\chi\delta}\,\partial^{\delta}\sigma^{\alpha\beta\chi} == 0$	1
$0^+_\cdot\tau^{\perp} == 0$	$\partial_{\beta}\partial_{\alpha}\tau\,(\Delta+\mathcal{K})^{\alpha\beta} == 0$	1
$-2\,i\,k\,0^+_\cdot\sigma^{\parallel} + 0^+_\cdot\tau^{\parallel} == 0$	$\partial_{\beta}\partial_{\alpha}\tau\,(\Delta+\mathcal{K})^{\alpha\beta} == \partial_{\beta}\partial^{\beta}\tau\,(\Delta+\mathcal{K})^{\alpha}{}_{\alpha} + 2\,\partial_{\chi}\partial^{\chi}\partial_{\beta}\sigma^{\alpha}{}_{\alpha}{}^{\beta}$	1
$2\,i\,k\,1^-_\cdot\sigma^{\perp\,\alpha} + 1^-_\cdot\tau^{\perp\,\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau\,(\Delta+\mathcal{K})^{\alpha\beta} + 2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\beta\alpha\chi}$	3
$1^-_\cdot\tau^{\parallel\,\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau\,(\Delta+\mathcal{K})^{\beta\alpha}$	3
$i\,k\,1^+_\cdot\sigma^{\perp\,\alpha\beta} + 1^+_\cdot\tau^{\parallel\,\alpha\beta} == 0$	$\partial_{\chi}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\beta\chi} + \partial_{\chi}\partial^{\beta}\tau\,(\Delta+\mathcal{K})^{\chi\alpha} + \partial_{\chi}\partial^{\chi}\tau\,(\Delta+\mathcal{K})^{\alpha\beta} + 2\,\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta} + 2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\chi\alpha\beta} == \partial_{\chi}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\chi\beta} + \partial_{\chi}\partial^{\beta}\tau\,(\Delta+\mathcal{K})^{\alpha\chi} + \partial_{\chi}\partial^{\chi}\tau\,(\Delta+\mathcal{K})^{\beta\alpha} + 2\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta}$	3
$-2\,i\,k\,2^+_\cdot\mathcal{A}^{\parallel\,\alpha\beta} + 2^+_\cdot\tau^{\parallel\,\alpha\beta} == 0$	$-i\Big(4\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\chi\delta} + 2\,\partial_{\delta}\partial^{\delta}\partial^{\beta}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\chi}{}_{\chi} - 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\beta\chi} - 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau\,(\Delta+\mathcal{K})^{\alpha\chi} - 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau\,(\Delta+\mathcal{K})^{\chi\alpha} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau\,(\Delta+\mathcal{K})^{\alpha\beta} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau\,(\Delta+\mathcal{K})^{\beta\alpha} + 4\,i\,k^{\chi}\,\partial_{\epsilon}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\sigma^{\delta}{}_{\delta}{}^{\epsilon} - 6\,i\,k^{\chi}\,\partial_{\epsilon}\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\delta\beta\epsilon} - 6\,i\,k^{\chi}\,\partial_{\epsilon}\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\delta\alpha\epsilon} + 6\,i\,k^{\chi}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\sigma^{\alpha\beta\delta} + 6\,i\,k^{\chi}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\sigma^{\beta\alpha\delta} + 2\,\eta^{\alpha\beta}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\tau\,(\Delta+\mathcal{K})^{\chi\delta} - 2\,\eta^{\alpha\beta}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\tau\,(\Delta+\mathcal{K})^{\chi}{}_{\chi} - 4\,i\,\eta^{\alpha\beta}\,k^{\chi}\,\partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial_{\chi}\sigma^{\delta}{}_{\delta}{}^{\epsilon}\Big) == 0$	5
Total expected gauge generators:		17

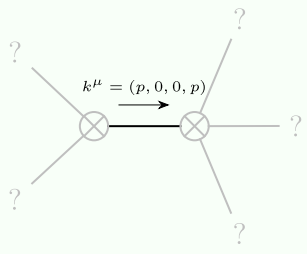
Massive spectrum



Massive particle

Pole residue:	$-\frac{1}{r_1} > 0$
Square mass:	$-\frac{t_1}{2\,r_1} > 0$
Spin:	2
Parity:	Odd

Massless spectrum



Massless particle

Pole residue:	$\frac{9}{2\,r_1+r_5} + \frac{2\,p^2\,(t_1+(2\,r_1+r_5)\,p^2)}{t_1^2} > 0$
Polarisations:	2

Unitarity conditions

$$r_1 < 0\;\&\&\;r_5 > -2\,r_1\;\&\&\;t_1 > 0$$