PSALTer results panel

$$\mathcal{S} == \int\int\int\int \Big(\frac{1}{6}\,(2\,(t_1 - 2\,t_3)\,\mathcal{A}^{\alpha\imath}{}_{\alpha}\,\mathcal{A}_{\imath}{}^{\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_\imath f^{\alpha\imath} + 8\,t_3\,\mathcal{A}_{\alpha}{}^{\theta}{}_{\theta}\,\partial_\imath f^{\alpha\imath} + 4\,t_1\,\mathcal{A}_{\imath}{}^{\theta}{}_{\theta}\,\partial^\imath f^{\alpha}{}_{\alpha} - 8\,t_3\,\mathcal{A}_{\imath}{}^{\theta}{}_{\theta}\,\partial^\imath f^{\alpha}{}_{\alpha} - 2\,t_1\,\partial_\imath f^{\theta}{}_{\theta}\,\partial^\imath f^{\alpha}{}_{\alpha} + 4\,t_3\,\partial_\imath f^{\theta}{}_{\theta}\,\partial^\imath f^{\alpha}{}_{\alpha} - 2\,t_1\,\partial_\imath f^{\alpha\imath}\,\partial_\theta f_{\alpha}{}^{\theta} + 4\,t_3\,\partial_\imath f^{\alpha\imath}\,\partial_\theta f_{\alpha}{}^{\theta} + 4\,t_1\,\partial^\imath f^{\alpha}{}_{\alpha}\,\partial_\theta f_{\imath}{}^{\theta} - 8\,t_3\,\partial^\imath f^{\alpha}{}_{\alpha}\,\partial_\theta f_{\imath}{}^{\theta} + 6\,r_5\,\partial_\imath \mathcal{A}_{\theta}{}^{\kappa}{}_{\kappa}\,\partial^\theta \mathcal{A}^{\alpha\imath}{}_{\alpha} - 6\,r_5\,\partial_\theta \mathcal{A}_{\imath}{}^{\kappa}{}_{\kappa}\,\partial^\theta \mathcal{A}^{\alpha\imath}{}_{\alpha} - 6\,t_1\,\partial_\alpha f_{\imath\theta}\,\partial^\theta f^{\alpha\imath} - 3\,t_1\,\partial_\alpha f_{\theta\imath}\,\partial^\theta f^{\alpha\imath} + 3\,t_1\,\partial_\imath f_{\alpha\theta}\,\partial^\theta f^{\alpha\imath} + 3\,t_1\,\partial_\theta f_{\alpha\imath}\,\partial^\theta f^{\alpha\imath} + 3\,t_1\,\partial_\theta f_{\imath\alpha}\,\partial^\theta f^{\alpha\imath} + 6\,t_1\,\mathcal{A}_{\alpha\theta\imath}\,(\mathcal{A}^{\alpha\imath\theta} + 2\,\partial^\theta f^{\alpha\imath}) - 6\,r_5\,\partial_\alpha \mathcal{A}^{\alpha\imath\theta}\,\partial_\kappa \mathcal{A}_{\imath}{}^{\kappa}{}_{\theta} + 12\,r_5\,\partial^\theta \mathcal{A}^{\alpha\imath}{}_{\alpha}\,\partial_\kappa \mathcal{A}_{\imath}{}^{\kappa}{}_{\theta} + 6\,r_5\,\partial_\alpha \mathcal{A}^{\alpha\imath\theta}\,\partial_\kappa \mathcal{A}_{\theta}{}^{\kappa}{}_{\imath} - 12\,r_5\,\partial^\theta \mathcal{A}^{\alpha\imath}{}_{\alpha}\,\partial_\kappa \mathcal{A}_{\theta}{}^{\kappa}{}_{\imath})\Big)[t, x, y, z]\,dt\,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_3	$-i\sqrt{2}\,k\,t_3$	0	0
$0^+_\cdot f^\parallel\,\dagger$	$i\sqrt{2}\,k\,t_3$	$2k^2\,t_3$	0	0
$0^+_\cdot f^\perp\,\dagger$	0	0	0	0
$0^-_\cdot\mathcal{A}^\parallel\,\dagger$	0	0	0	$-t_1$

	$1^+_\cdot\mathcal{A}^\parallel{}_{\alpha\beta}$	$1^+_\cdot\mathcal{A}^\perp{}_{\alpha\beta}$	$1^+_\cdot f^\parallel{}_{\alpha\beta}$	$1^-_\cdot\mathcal{A}^\parallel{}_{\alpha}$	$1^-_\cdot\mathcal{A}^\perp{}_{\alpha}$	$1^-_\cdot f^\parallel{}_{\alpha}$	$1^-_\cdot f^\perp{}_{\alpha}$
$1^+_\cdot\mathcal{A}^\parallel\,\dagger^{\alpha\beta}$	$k^2\,r_5\,\frac{t_1}{2}$	$-\frac{t_1}{\sqrt{2}}$	$-\frac{i\,k\,t_1}{\sqrt{2}}$	0	0	0	0
$1^+_\cdot\mathcal{A}^\perp\,\dagger^{\alpha\beta}$	$-\frac{t_1}{\sqrt{2}}$	0	0	0	0	0	0
$1^+_\cdot f^\parallel\,\dagger^{\alpha\beta}$	$\frac{i\,k\,t_1}{\sqrt{2}}$	0	0	0	0	0	0
$1^-_\cdot\mathcal{A}^\parallel\,\dagger^{\alpha}$	0	0	0	$\frac{1}{6}\,(6\,k^2\,r_5 + t_1 + 4\,t_3)$	$\frac{t_1 - 2\,t_3}{3\sqrt{2}}$	0	$\frac{1}{3}\,i\,k\,(t_1 - 2\,t_3)$
$1^-_\cdot\mathcal{A}^\perp\,\dagger^{\alpha}$	0	0	0	$\frac{t_1 - 2\,t_3}{3\sqrt{2}}$	$\frac{t_1 + t_3}{3}$	0	$\frac{1}{3}\,i\,\sqrt{2}\,k\,(t_1 + t_3)$
$1^-_\cdot f^\parallel\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_\cdot f^\perp\,\dagger^{\alpha}$	0	0	0	$-\frac{1}{3}\,i\,k\,(t_1 - 2\,t_3)$	$-\frac{1}{3}\,i\,\sqrt{2}\,k\,(t_1 + t_3)$	0	$\frac{2}{3}\,k^2\,(t_1 + t_3)$

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

Saturated propagator

	$0^+_\cdot\sigma^\parallel$	$0^+_\cdot\tau^\parallel$	$0^+_\cdot\tau^\perp$	$0^-_\cdot\sigma^\parallel$
$0^+_\cdot\sigma^\parallel\,\dagger$	$\frac{1}{(1+2\,k^2)^2\,t_3}$	$-\frac{i\,\sqrt{2}\,k}{(1+2\,k^2)^2\,t_3}$	0	0
$0^+_\cdot\tau^\parallel\,\dagger$	$\frac{i\,\sqrt{2}\,k}{(1+2\,k^2)^2\,t_3}$	$\frac{2\,k^2}{(1+2\,k^2)^2\,t_3}$	0	0
$0^+_\cdot\tau^\perp\,\dagger$	0	0	0	0
$0^-_\cdot\sigma^\parallel\,\dagger$	0	0	0	$-\frac{1}{t_1}$

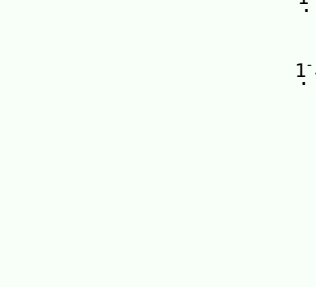
	$1^+_\cdot\sigma^\parallel{}_{\alpha\beta}$	$1^+_\cdot\sigma^\perp{}_{\alpha\beta}$	$1^+_\cdot\tau^\parallel{}_{\alpha\beta}$	$1^-_\cdot\sigma^\parallel{}_{\alpha}$	$1^-_\cdot\sigma^\perp{}_{\alpha}$	$1^-_\cdot\tau^\parallel{}_{\alpha}$	$1^-_\cdot\tau^\perp{}_{\alpha}$
$1^+_\cdot\sigma^\parallel\,\dagger^{\alpha\beta}$	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
$1^+_\cdot\sigma^\perp\,\dagger^{\alpha\beta}$	$-\frac{\sqrt{2}}{t_1 + k^2\,t_1}$	$\frac{-2\,k^2\,r_5 + t_1}{(1+k^2)^2\,t_1^2}$	$-\frac{i\,(2\,k^3\,r_5 - k\,t_1)}{(1+k^2)^2\,t_1^2}$	0	0	0	0
$1^+_\cdot\tau^\parallel\,\dagger^{\alpha\beta}$	$\frac{i\,\sqrt{2}\,k}{t_1 + k^2\,t_1}$	$\frac{i\,(2\,k^3\,r_5 - k\,t_1)}{(1+k^2)^2\,t_1^2}$	$\frac{-2\,k^4\,r_5 + k^2\,t_1}{(1+k^2)^2\,t_1^2}$	0	0	0	0
$1^-_\cdot\sigma^\parallel\,\dagger^{\alpha}$	0	0	0	$\frac{2\,(t_1 + t_3)}{3\,t_1\,t_3 + 2\,k^2\,r_5\,(t_1 + t_3)}$	$-\frac{\sqrt{2}\,(t_1 - 2\,t_3)}{(1+2\,k^2)\,(3\,t_1\,t_3 + 2\,k^2\,r_5\,(t_1 + t_3))}$	0	$-\frac{2\,i\,k\,(t_1 - 2\,t_3)}{(1+2\,k^2)\,(3\,t_1\,t_3 + 2\,k^2\,r_5\,(t_1 + t_3))}$
$1^-_\cdot\sigma^\perp\,\dagger^{\alpha}$	0	0	0	$-\frac{\sqrt{2}\,(t_1 - 2\,t_3)}{(1+2\,k^2)\,(3\,t_1\,t_3 + 2\,k^2\,r_5\,(t_1 + t_3))}$	$\frac{6\,k^2\,r_5 + t_1 + 4\,t_3}{(1+2\,k^2)^2\,(3\,t_1\,t_3 + 2\,k^2\,r_5\,(t_1 + t_3))}$	0	$\frac{i\,\sqrt{2}\,k\,(6\,k^2\,r_5 + t_1 + 4\,t_3)}{(1+2\,k^2)^2\,(3\,t_1\,t_3 + 2\,k^2\,r_5\,(t_1 + t_3))}$
$1^-_\cdot\tau^\parallel\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_\cdot\tau^\perp\,\dagger^{\alpha}$	0	0	0	$\frac{2\,i\,k\,(t_1 - 2\,t_3)}{(1+2\,k^2)\,(3\,t_1\,t_3 + 2\,k^2\,r_5\,(t_1 + t_3))}$	$-\frac{i\,\sqrt{2}\,k\,(6\,k^2\,r_5 + t_1 + 4\,t_3)}{(1+2\,k^2)^2\,(3\,t_1\,t_3 + 2\,k^2\,r_5\,(t_1 + t_3))}$	0	$\frac{2\,k^2\,(6\,k^2\,r_5 + t_1 + 4\,t_3)}{(1+2\,k^2)^2\,(3\,t_1\,t_3 + 2\,k^2\,r_5\,(t_1 + t_3))}$

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

Source constraints

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

Massive spectrum



Massive particle

Pole residue:	$\frac{6\,t_1\,t_3\,(t_1 + t_3) - 3\,r_5\,(t_1^2 + 2\,t_3^2)}{2\,r_5\,(t_1 + t_3)\,(-3\,t_1\,t_3 + r_5\,(t_1 + t_3))} > 0$
Square mass:	$-\frac{3\,t_1\,t_3}{2\,r_5\,t_1 + 2\,r_5\,t_3} > 0$
Spin:	1
Parity:	Odd

Massless spectrum

(No particles)

Unitarity conditions

$(t_1 < 0 \;\&\&\; 0 < t_3 < -t_1 \;\&\&\; r_5 < 0) \;||\; (t_1 > 0 \;\&\&\; ((t_3 < -t_1 \;\&\&\; r_5 < 0) \;||\; (t_3 > 0 \;\&\&\; r_5 < 0)))$