PSALTer results panel

$$\mathcal{S} == \iiiint (\tfrac{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} - 24\,r_3\,\partial_\beta\mathcal{A}_{\prime\theta\alpha}\,\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	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
$1^+_:\mathcal{A}^{\perp}\dagger^{\alpha\beta}$	$\frac{\sqrt{2}\,t_2}{3}$	$\frac{t_2}{3}$	$\frac{i\,k\,t_2}{3}$	0	0	0	0
$1^+_:f^{\parallel}\dagger^{\alpha\beta}$	$-\frac{1}{3}i\sqrt{2}\,k\,t_2$	$-\frac{1}{3}i\,k\,t_2$	$\frac{k^2\,t_2}{3}$	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	$-\frac{2}{3}i\,k\,t_3$
$1^-_:\mathcal{A}^{\perp}\dagger^{\alpha}$	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	$\frac{2i\,k\,t_3}{3}$	$-\frac{1}{3}i\sqrt{2}\,k\,t_3$	0	$\frac{2k^2\,t_3}{3}$

	$2^+_:\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$2^+_:f^{\parallel}{}_{\alpha\beta}$	$2^-_:\mathcal{A}^{\parallel}{}_{\alpha\beta\chi}$
$2^+_:\mathcal{A}^{\parallel}\dagger^{\alpha\beta}$	$-\frac{3k^2r_3}{2}$	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	$\frac{1}{t_2}$

	$1^+_:\sigma^{\parallel}{}_{\alpha\beta}$	$1^+_:\sigma^{\perp}{}_{\alpha\beta}$	$1^+_:\tau^{\parallel}{}_{\alpha\beta}$	$1^-_:\sigma^{\parallel}{}_{\alpha}$	$1^-_:\sigma^{\perp}{}_{\alpha}$	$1^-_:\tau^{\parallel}{}_{\alpha}$	$1^-_:\tau^{\perp}{}_{\alpha}$
$1^+_:\sigma^{\parallel}\dagger^{\alpha\beta}$	$\frac{1}{k^2(2r_3+r_5)}$	$-\frac{\sqrt{2}}{k^2(1+k^2)(2r_3+r_5)}$	$-\frac{i\sqrt{2}}{k(1+k^2)(2r_3+r_5)}$	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	$\frac{6k^2(r_3+2r_5)+8t_3}{(1+2k^2)^2(r_3+2r_5)t_3}$

	$2^+_:\sigma^{\parallel}{}_{\alpha\beta}$	$2^+_:\tau^{\parallel}{}_{\alpha\beta}$	$2^-_:\sigma^{\parallel}{}_{\alpha\beta\chi}$
$2^+_:\sigma^{\parallel}\dagger^{\alpha\beta}$	$-\frac{2}{3k^2r_3}$	0	0
$2^+_:\tau^{\parallel}\dagger^{\alpha\beta}$	0	0	0
$2^-_:\sigma^{\parallel}\dagger^{\alpha\beta\chi}$	0	0	0

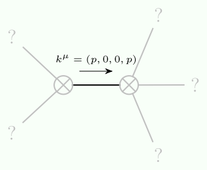
Source constraints

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

Massive spectrum

(No particles)

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

$$(r_3 < 0 \;\&\&\; (r_5 < -\tfrac{r_3}{2} \;||\; r_5 > -2\,r_3)) \;||\; (r_3 > 0 \;\&\&\; -2\,r_3 < r_5 < -\tfrac{r_3}{2})$$