PSALTer results panel

$$\mathcal{S} == \iiiint \left(\mathcal{A}^{\alpha\beta\chi}\ \sigma_{\alpha\beta\chi} + f^{\alpha\beta}\ \tau_{(\Delta+\mathcal{K})_{\alpha\beta}} + \frac{1}{3} t_{\cdot 1} \left(3\, \mathcal{A}^{\alpha\prime}{}_{\alpha}\ \mathcal{A}_{\prime}{}^{\theta}{}_{\theta} - 6\, \mathcal{A}_{\alpha}{}^{\theta}{}_{\theta}\, \partial_{\prime} f^{\alpha\prime} + 6\, \mathcal{A}_{\prime}{}^{\theta}{}_{\theta}\, \partial^{\prime} f^{\alpha}{}_{\alpha} - 3\, \partial_{\prime} f^{\theta}{}_{\theta} \partial^{\prime} f^{\alpha}{}_{\alpha} - 3\, \partial_{\prime} f^{\alpha\prime}\, \partial_{\theta} f_{\alpha}{}^{\theta} + 6\, \partial^{\prime} f^{\alpha}{}_{\alpha} \partial_{\theta} f_{\prime}{}^{\theta} + 2\, \mathcal{A}_{\prime\theta\alpha}\, \partial^{\theta} f^{\alpha\prime} - 2\, \partial_{\alpha} f_{\prime\theta}\, \partial^{\theta} f^{\alpha\prime} - 2\, \partial_{\alpha} f_{\theta\prime}\, \partial^{\theta} f^{\alpha\prime} + \partial_{\prime} f_{\alpha\theta}\, \partial^{\theta} f^{\alpha\prime} + 2\, \partial_{\theta} f_{\alpha\prime}\, \partial^{\theta} f^{\alpha\prime} + \partial_{\theta} f_{\prime\alpha}\, \partial^{\theta} f^{\alpha\prime} + \mathcal{A}_{\alpha\prime\theta} \left(\mathcal{A}^{\alpha\prime\theta} + 2\, \partial^{\theta} f^{\alpha\prime} \right) + \mathcal{A}_{\alpha\theta\prime} \left(\mathcal{A}^{\alpha\prime\theta} + 4\, \partial^{\theta} f^{\alpha\prime} \right) \right) + r_{\cdot 5} \left(\partial_{\prime} \mathcal{A}_{\theta}{}^{\kappa}{}_{\kappa}\, \partial^{\theta} \mathcal{A}^{\alpha\prime}{}_{\alpha} - \partial_{\theta} \mathcal{A}_{\prime}{}^{\kappa}{}_{\kappa}\, \partial^{\theta} \mathcal{A}^{\alpha\prime}{}_{\alpha} - \left(\partial_{\alpha} \mathcal{A}^{\alpha\prime\theta} - 2\, \partial^{\theta} \mathcal{A}^{\alpha\prime}{}_{\alpha} \right) \left(\partial_{\kappa} \mathcal{A}_{\prime}{}^{\kappa}{}_{\theta} - \partial_{\kappa} \mathcal{A}_{\theta}{}^{\kappa}{}_{\prime} \right) \right) \right) [t, x, y, z]\, dz\, dy\, dx\, dt$$

Wave operator

	$0^+_{\cdot}\mathcal{A}^{\parallel}$	$0^+_{\cdot}f^{\parallel}$	$0^+_{\cdot}f^{\perp}$	$0^-_{\cdot}\mathcal{A}^{\parallel}$
$0^+_{\cdot}\mathcal{A}^{\parallel}\dagger$	$-t_{\cdot 1}$	$i\sqrt{2}\,k t_{\cdot 1}$	0	0
$0^+_{\cdot}f^{\parallel}\dagger$	$-i\sqrt{2}\,k t_{\cdot 1}$	$-2k^2 t_{\cdot 1}$	0	0
$0^+_{\cdot}f^{\perp}\dagger$	0	0	0	0
$0^-_{\cdot}\mathcal{A}^{\parallel}\dagger$	0	0	0	0

	$1^+_{\cdot}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$1^+_{\cdot}\mathcal{A}^{\perp}{}_{\alpha\beta}$	$1^+_{\cdot}f^{\parallel}{}_{\alpha\beta}$	$1^-_{\cdot}\mathcal{A}^{\parallel}{}_{\alpha}$	$1^-_{\cdot}\mathcal{A}^{\perp}{}_{\alpha}$	$1^-_{\cdot}f^{\parallel}{}_{\alpha}$	$1^-_{\cdot}f^{\perp}{}_{\alpha}$
$1^+_{\cdot}\mathcal{A}^{\parallel}\dagger^{\alpha\beta}$	$k^2 r_{\cdot 5} + \frac{t_{\cdot 1}}{6}$	$-\frac{t_{\cdot 1}}{3\sqrt{2}}$	$-\frac{ikt_{\cdot 1}}{3\sqrt{2}}$	0	0	0	0
$1^+_{\cdot}\mathcal{A}^{\perp}\dagger^{\alpha\beta}$	$-\frac{t_{\cdot 1}}{3\sqrt{2}}$	$\frac{t_{\cdot 1}}{3}$	$\frac{ikt_{\cdot 1}}{3}$	0	0	0	0
$1^+_{\cdot}f^{\parallel}\dagger^{\alpha\beta}$	$\frac{ikt_{\cdot 1}}{3\sqrt{2}}$	$-\frac{1}{3} ikt_{\cdot 1}$	$\frac{k^2 t_{\cdot 1}}{3}$	0	0	0	0
$1^-_{\cdot}\mathcal{A}^{\parallel}\dagger^{\alpha}$	0	0	0	$k^2 r_{\cdot 5} - \frac{t_{\cdot 1}}{2}$	$\frac{t_{\cdot 1}}{\sqrt{2}}$	0	$ikt_{\cdot 1}$
$1^-_{\cdot}\mathcal{A}^{\perp}\dagger^{\alpha}$	0	0	0	$\frac{t_{\cdot 1}}{\sqrt{2}}$	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	$-ikt_{\cdot 1}$	0	0	0

	$2^+_{\cdot}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$2^+_{\cdot}f^{\parallel}{}_{\alpha\beta}$	$2^-_{\cdot}\mathcal{A}^{\parallel}{}_{\alpha\beta\chi}$
$2^+_{\cdot}\mathcal{A}^{\parallel}\dagger^{\alpha\beta}$	$\frac{t_{\cdot 1}}{2}$	$-\frac{ikt_{\cdot 1}}{\sqrt{2}}$	0
$2^+_{\cdot}f^{\parallel}\dagger^{\alpha\beta}$	$\frac{ikt_{\cdot 1}}{\sqrt{2}}$	$k^2 t_{\cdot 1}$	0
$2^-_{\cdot}\mathcal{A}^{\parallel}\dagger^{\alpha\beta\chi}$	0	0	$\frac{t_{\cdot 1}}{2}$

Saturated propagator

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

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

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

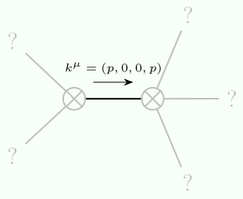
Source constraints

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

Massive spectrum

(No particles)

Massless spectrum



Massless particle

Pole residue:	$\frac{9}{r_{\cdot 5}} + \frac{2p^2}{t_{\cdot 1}} + \frac{2r_{\cdot 5} p^4}{t_{\cdot 1}^2} > 0$
Polarisations:	2

Unitarity conditions

$r_{\cdot 5} > 0\ \&\&\ (t_{\cdot 1} < 0\ ||\ t_{\cdot 1} > 0)$