PSALTer results panel

$$S == \iiint\!\!\iint\left(\frac{1}{6}\left(6\,\mathcal{A}^{\alpha\beta\chi}\,\sigma_{\alpha\beta\chi} + 6\,f^{\alpha\beta}\,\tau\,(\Delta+\mathcal{K})_{\alpha\beta} - 3\,r_{\cdot 3}\,\partial_\beta\mathcal{A}_{\prime}{}^{\theta}{}_{\theta}\,\partial^\prime\mathcal{A}^{\alpha\beta}{}_{\alpha} - 3\,r_{\cdot 3}\,\partial_\prime\mathcal{A}_{\beta}{}^{\theta}{}_{\theta}\,\partial^\prime\mathcal{A}^{\alpha\beta}{}_{\alpha} - 3\,r_{\cdot 3}\,\partial_\alpha\mathcal{A}^{\alpha\beta\prime}\,\partial_\theta\mathcal{A}_{\beta}{}^{\theta}{}_{\prime} + 6\,r_{\cdot 3}\,\partial^\prime\mathcal{A}^{\alpha\beta}{}_{\alpha}\,\partial_\theta\mathcal{A}_{\beta}{}^{\theta}{}_{\prime} - 3\,r_{\cdot 3}\,\partial_\alpha\mathcal{A}^{\alpha\beta\prime}\,\partial_\theta\mathcal{A}_{\prime}{}^{\theta}{}_{\beta} + 6\,r_{\cdot 3}\,\partial^\prime\mathcal{A}^{\alpha\beta}{}_{\alpha}\,\partial_\theta\mathcal{A}_{\prime}{}^{\theta}{}_{\beta} - 24\,r_{\cdot 3}\,\partial_\beta\mathcal{A}_{\prime\theta\alpha}\,\partial^\theta\mathcal{A}^{\alpha\beta\prime} + 6\,r_{\cdot 5}\,\partial_\prime\mathcal{A}_{\theta}{}^{\kappa}{}_{\kappa}\,\partial^\theta\mathcal{A}^{\alpha\prime}{}_{\alpha} - 6\,r_{\cdot 5}\,\partial_\theta\mathcal{A}_{\prime}{}^{\kappa}{}_{\kappa}\,\partial^\theta\mathcal{A}^{\alpha\prime}{}_{\alpha} + 4\,t_{\cdot 2}\,\mathcal{A}_{\prime\theta\alpha}\,\partial^\theta f^{\alpha\prime} + 2\,t_{\cdot 2}\,\partial_\alpha f_{\prime\theta}\,\partial^\theta f^{\alpha\prime} - t_{\cdot 2}\,\partial_\alpha f_{\theta\prime}\,\partial^\theta f^{\alpha\prime} - t_{\cdot 2}\,\partial_\prime f_{\alpha\theta}\,\partial^\theta f^{\alpha\prime} + t_{\cdot 2}\,\partial_\theta f_{\alpha\prime}\,\partial^\theta f^{\alpha\prime} - t_{\cdot 2}\,\partial_\theta f_{\prime\alpha}\,\partial^\theta f^{\alpha\prime} - 4\,t_{\cdot 2}\,\mathcal{A}_{\alpha\theta\prime}\left(\mathcal{A}^{\alpha\prime\theta} + \partial^\theta f^{\alpha\prime}\right) + 2\,t_{\cdot 2}\,\mathcal{A}_{\alpha\prime\theta}\left(\mathcal{A}^{\alpha\prime\theta} + 2\,\partial^\theta f^{\alpha\prime}\right) - 6\,r_{\cdot 5}\,\partial_\alpha\mathcal{A}^{\alpha\prime\theta}\,\partial_\kappa\mathcal{A}_{\prime}{}^{\kappa}{}_{\theta} + 12\,r_{\cdot 5}\,\partial^\theta\mathcal{A}^{\alpha\prime}{}_{\alpha}\,\partial_\kappa\mathcal{A}_{\prime}{}^{\kappa}{}_{\theta} + 6\,r_{\cdot 5}\,\partial_\alpha\mathcal{A}^{\alpha\prime\theta}\,\partial_\kappa\mathcal{A}_{\theta}{}^{\kappa}{}_{\prime} - 12\,r_{\cdot 5}\,\partial^\theta\mathcal{A}^{\alpha\prime}{}_{\alpha}\,\partial_\kappa\mathcal{A}_{\theta}{}^{\kappa}{}_{\prime}\right)\right)[t, x, y, z]\,dt\,dx\,dy\,dz$$

Wave operator

	$\overset{0}{\cdot}{}^{+}\mathcal{A}^{\parallel}$	$\overset{0}{\cdot}{}^{+}f^{\parallel}$	$\overset{0}{\cdot}{}^{+}f^{\perp}$	$\overset{0}{\cdot}{}^{-}\mathcal{A}^{\parallel}$
$\overset{0}{\cdot}{}^{+}\mathcal{A}^{\parallel}\,\dagger$	0	0	0	0
$\overset{0}{\cdot}{}^{+}f^{\parallel}\,\dagger$	0	0	0	0
$\overset{0}{\cdot}{}^{+}f^{\perp}\,\dagger$	0	0	0	0
$\overset{0}{\cdot}{}^{-}\mathcal{A}^{\parallel}\,\dagger$	0	0	0	$t_{\cdot 2}$

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

	$\overset{2}{\cdot}{}^{+}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$\overset{2}{\cdot}{}^{+}f^{\parallel}{}_{\alpha\beta}$	$\overset{2}{\cdot}{}^{-}\mathcal{A}^{\parallel}{}_{\alpha\beta\chi}$
$\overset{2}{\cdot}{}^{+}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{3\,k^2\,r_{\cdot 3}}{2}$	0	0
$\overset{2}{\cdot}{}^{+}f^{\parallel}\,\dagger^{\alpha\beta}$	0	0	0
$\overset{2}{\cdot}{}^{-}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	0

Saturated propagator

	$\overset{0}{\cdot}{}^{+}\sigma^{\parallel}$	$\overset{0}{\cdot}{}^{+}\tau^{\parallel}$	$\overset{0}{\cdot}{}^{+}\tau^{\perp}$	$\overset{0}{\cdot}{}^{-}\sigma^{\parallel}$
$\overset{0}{\cdot}{}^{+}\sigma^{\parallel}\,\dagger$	0	0	0	0
$\overset{0}{\cdot}{}^{+}\tau^{\parallel}\,\dagger$	0	0	0	0
$\overset{0}{\cdot}{}^{+}\tau^{\perp}\,\dagger$	0	0	0	0
$\overset{0}{\cdot}{}^{-}\sigma^{\parallel}\,\dagger$	0	0	0	$\frac{1}{t_{\cdot 2}}$

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

	$\overset{2}{\cdot}{}^{+}\sigma^{\parallel}{}_{\alpha\beta}$	$\overset{2}{\cdot}{}^{+}\tau^{\parallel}{}_{\alpha\beta}$	$\overset{2}{\cdot}{}^{-}\sigma^{\parallel}{}_{\alpha\beta\chi}$
$\overset{2}{\cdot}{}^{+}\sigma^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{2}{3\,k^2\,r_{\cdot 3}}$	0	0
$\overset{2}{\cdot}{}^{+}\tau^{\parallel}\,\dagger^{\alpha\beta}$	0	0	0
$\overset{2}{\cdot}{}^{-}\sigma^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	0

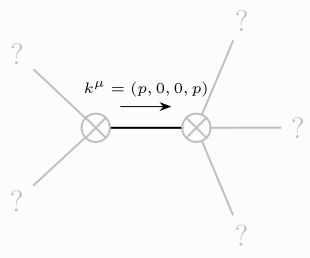
Source constraints

Spin-parity form	Covariant form	Multiplicities
$\overset{0}{\cdot}{}^{+}\sigma^{\parallel} == 0$	$\partial_\beta\sigma^{\alpha}{}_{\alpha}{}^{\beta} == 0$	1
$\overset{0}{\cdot}{}^{+}\tau^{\parallel} == 0$	$\partial_\beta\partial_\alpha\tau\,(\Delta+\mathcal{K})^{\alpha\beta} == \partial_\beta\partial^\beta\tau\,(\Delta+\mathcal{K})^{\alpha}{}_{\alpha}$	1
$\overset{0}{\cdot}{}^{+}\tau^{\perp} == 0$	$\partial_\beta\partial_\alpha\tau\,(\Delta+\mathcal{K})^{\alpha\beta} == 0$	1
$\overset{1}{\cdot}{}^{-}\tau^{\perp\,\alpha} == 0$	$\partial_\chi\partial_\beta\partial^\alpha\tau\,(\Delta+\mathcal{K})^{\beta\chi} == \partial_\chi\partial^\chi\partial_\beta\tau\,(\Delta+\mathcal{K})^{\alpha\beta}$	3
$\overset{1}{\cdot}{}^{-}\tau^{\parallel\,\alpha} == 0$	$\partial_\chi\partial_\beta\partial^\alpha\tau\,(\Delta+\mathcal{K})^{\beta\chi} == \partial_\chi\partial^\chi\partial_\beta\tau\,(\Delta+\mathcal{K})^{\beta\alpha}$	3
$\overset{1}{\cdot}{}^{-}\sigma^{\perp\,\alpha} == 0$	$\partial_\chi\partial_\beta\sigma^{\beta\alpha\chi} == 0$	3
$i\,k\,\overset{1}{\cdot}{}^{+}\sigma^{\perp\,\alpha\beta} + \overset{1}{\cdot}{}^{+}\tau^{\parallel\,\alpha\beta} == 0$	$\partial_\chi\partial^\alpha\tau\,(\Delta+\mathcal{K})^{\beta\chi} + \partial_\chi\partial^\beta\tau\,(\Delta+\mathcal{K})^{\chi\alpha} + \partial_\chi\partial^\chi\tau\,(\Delta+\mathcal{K})^{\alpha\beta} + 2\,\partial_\delta\partial_\chi\partial^\alpha\sigma^{\chi\beta\delta} + 2\,\partial_\delta\partial^\delta\partial_\chi\sigma^{\chi\alpha\beta} == \partial_\chi\partial^\alpha\tau\,(\Delta+\mathcal{K})^{\chi\beta} + \partial_\chi\partial^\beta\tau\,(\Delta+\mathcal{K})^{\alpha\chi} + \partial_\chi\partial^\chi\tau\,(\Delta+\mathcal{K})^{\beta\alpha} + 2\,\partial_\delta\partial_\chi\partial^\beta\sigma^{\chi\alpha\delta}$	3
$\overset{2}{\cdot}{}^{-}\sigma^{\parallel\,\alpha\beta\chi} == 0$	$3\,\partial_\epsilon\partial_\delta\partial^\chi\partial^\alpha\sigma^{\delta\beta\epsilon} + 3\,\partial_\epsilon\partial^\epsilon\partial^\chi\partial^\alpha\sigma^{\delta\beta}{}_{\delta} + 2\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\beta\sigma^{\alpha\chi\delta} + 4\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\beta\sigma^{\chi\alpha\delta} + 2\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\delta\sigma^{\alpha\beta\chi} + 2\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\chi\sigma^{\beta\alpha\delta} + 4\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\chi\sigma^{\delta\alpha\beta} + 3\,\eta^{\beta\chi}\,\partial_\phi\partial^\phi\partial_\epsilon\partial^\alpha\sigma^{\delta}{}_{\delta}{}^{\epsilon} + 3\,\eta^{\alpha\chi}\,\partial_\phi\partial^\phi\partial_\epsilon\partial_\delta\sigma^{\delta\beta\epsilon} + 3\,\eta^{\beta\chi}\,\partial_\phi\partial^\phi\partial_\epsilon\partial^\epsilon\sigma^{\delta\alpha}{}_{\delta} == 3\,\partial_\epsilon\partial_\delta\partial^\chi\partial^\beta\sigma^{\delta\alpha\epsilon} + 3\,\partial_\epsilon\partial^\epsilon\partial^\chi\partial^\beta\sigma^{\delta\alpha}{}_{\delta} + 2\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\alpha\sigma^{\beta\chi\delta} + 4\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\alpha\sigma^{\chi\beta\delta} + 2\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\delta\sigma^{\beta\alpha\chi} + 2\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\delta\sigma^{\chi\alpha\beta} + 3\,\eta^{\alpha\chi}\,\partial_\phi\partial^\phi\partial_\epsilon\partial^\beta\sigma^{\delta}{}_{\delta}{}^{\epsilon} + 3\,\eta^{\beta\chi}\,\partial_\phi\partial^\phi\partial_\epsilon\partial_\delta\sigma^{\delta\alpha\epsilon} + 3\,\eta^{\alpha\chi}\,\partial_\phi\partial^\phi\partial_\epsilon\partial^\epsilon\sigma^{\delta\beta}{}_{\delta}$	5
$\overset{2}{\cdot}{}^{+}\tau^{\parallel\,\alpha\beta} == 0$	$4\,\partial_\delta\partial_\chi\partial^\beta\partial^\alpha\tau\,(\Delta+\mathcal{K})^{\chi\delta} + 2\,\partial_\delta\partial^\delta\partial^\beta\partial^\alpha\tau\,(\Delta+\mathcal{K})^{\chi}{}_{\chi} + 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\chi\tau\,(\Delta+\mathcal{K})^{\alpha\beta} + 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\chi\tau\,(\Delta+\mathcal{K})^{\beta\alpha} + 2\,\eta^{\alpha\beta}\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial_\chi\tau\,(\Delta+\mathcal{K})^{\chi\delta} == 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\alpha\tau\,(\Delta+\mathcal{K})^{\beta\chi} + 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\chi\tau\,(\Delta+\mathcal{K})^{\chi\beta} + 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\beta\tau\,(\Delta+\mathcal{K})^{\alpha\chi} + 3\,\partial_\delta\partial^\delta\partial_\chi\partial^\beta\tau\,(\Delta+\mathcal{K})^{\chi\alpha} + 2\,\eta^{\alpha\beta}\,\partial_\epsilon\partial^\epsilon\partial_\delta\partial^\delta\tau\,(\Delta+\mathcal{K})^{\chi}{}_{\chi}$	5
Total expected gauge generators:			25

Massive spectrum

(There are no massive particles)

Massless spectrum



Massless particle

Pole residue:	$-\frac{2}{r_{\cdot 3}} + \frac{7}{2\,r_{\cdot 3}+r_{\cdot 5}} - \frac{24}{r_{\cdot 3}+2\,r_{\cdot 5}} > 0$
Polarisations:	2

Gauge symmetries

(Not yet implemented in PSALTer)

Unitarity conditions

$$\left(r_{\cdot 3} < 0\ \&\&\ \left(r_{\cdot 5} < -\frac{r_{\cdot 3}}{2}\ \|\ r_{\cdot 5} > -2\,r_{\cdot 3}\right)\right)\ \|\ \left(r_{\cdot 3} > 0\ \&\&\ -2\,r_{\cdot 3} < r_{\cdot 5} < -\frac{r_{\cdot 3}}{2}\right)$$

Validity assumptions

(Not yet implemented in PSALTer)