PSALTer results panel

$$\mathcal{S} == \iiint\int (\frac{1}{6} (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} + 8\, r_{\cdot 2}\, \partial_\beta \mathcal{A}_{\alpha\prime\theta}\, \partial^\theta \mathcal{A}^{\alpha\beta\prime} - 4\, r_{\cdot 2}\, \partial_\beta \mathcal{A}_{\alpha\theta\prime}\, \partial^\theta \mathcal{A}^{\alpha\beta\prime} + 4\, r_{\cdot 2}\, \partial_\beta \mathcal{A}_{\prime\theta\alpha}\, \partial^\theta \mathcal{A}^{\alpha\beta\prime} - 24\, r_{\cdot 3}\, \partial_\beta \mathcal{A}_{\prime\theta\alpha}\, \partial^\theta \mathcal{A}^{\alpha\beta\prime} - 2\, r_{\cdot 2}\, \partial_{\prime} \mathcal{A}_{\alpha\beta\theta}\, \partial^\theta \mathcal{A}^{\alpha\beta\prime} + 2\, r_{\cdot 2}\, \partial_\theta \mathcal{A}_{\alpha\beta\prime}\, \partial^\theta \mathcal{A}^{\alpha\beta\prime} - 4\, r_{\cdot 2}\, \partial_\theta \mathcal{A}_{\alpha\prime\beta}\, \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}\, (\mathcal{A}^{\alpha\prime\theta} + \partial^\theta f^{\alpha\prime}) + 2\, t_{\cdot 2}\, \mathcal{A}_{\alpha\prime\theta}\, (\mathcal{A}^{\alpha\prime\theta} + 2\, \partial^\theta f^{\alpha\prime}) - 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}))[t, x, y, z]\, dz\, dy\, dx\, dt$$

Wave operator

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

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

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

Saturated propagator

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

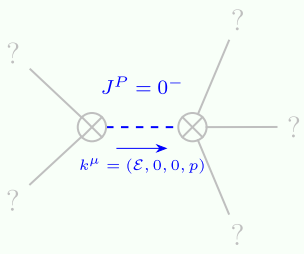
	$1^+_{\cdot}\sigma^{\parallel}{}_{\alpha\beta}$	$1^+_{\cdot}\sigma^{\perp}{}_{\alpha\beta}$	$1^+_{\cdot}\tau^{\parallel}{}_{\alpha\beta}$	$1^-_{\cdot}\sigma^{\parallel}{}_{\alpha}$	$1^-_{\cdot}\sigma^{\perp}{}_{\alpha}$	$1^-_{\cdot}\tau^{\parallel}{}_{\alpha}$	$1^-_{\cdot}\tau^{\perp}{}_{\alpha}$
$1^+_{\cdot}\sigma^{\parallel}\,\dagger^{\alpha\beta}$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

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

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

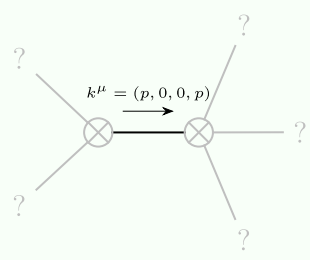
Massive spectrum



Massive particle

Pole residue:	$-\frac{1}{r_{\cdot 2}} > 0$
Square mass:	$-\frac{t_{\cdot 2}}{r_{\cdot 2}} > 0$
Spin:	0
Parity:	Odd

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

Unitarity conditions

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