PSALTer results panel

$$S == \int\int\int\int\Big(\frac{1}{6}\Big(6\,\mathcal{A}^{\alpha\beta\chi}\,\sigma_{\alpha\beta\chi} + 6\,f^{\alpha\beta}\,\tau\,(\Delta+\mathcal{K})_{\alpha\beta} - 15\,r_{\cdot 3}\,\partial_\beta\mathcal{A}_{\prime}{}^{\theta}{}_{\theta}\,\partial^\prime\mathcal{A}^{\alpha\beta}{}_{\alpha} + 9\,r_{\cdot 3}\,\partial_\prime\mathcal{A}_{\beta}{}^{\theta}{}_{\theta}\,\partial^\prime\mathcal{A}^{\alpha\beta}{}_{\alpha} + 9\,r_{\cdot 3}\,\partial_\alpha\mathcal{A}^{\alpha\beta\prime}\,\partial_\theta\mathcal{A}_{\beta}{}^{\theta}{}_{\prime} - 18\,r_{\cdot 3}\,\partial^\prime\mathcal{A}^{\alpha\beta}{}_{\alpha}\,\partial_\theta\mathcal{A}_{\beta}{}^{\theta}{}_{\prime} - 15\,r_{\cdot 3}\,\partial_\alpha\mathcal{A}^{\alpha\beta\prime}\,\partial_\theta\mathcal{A}_{\prime}{}^{\theta}{}_{\beta} + 30\,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} + 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}\,\big(\mathcal{A}^{\alpha\prime\theta} + \partial^\theta f^{\alpha\prime}\big) + 2\,t_{\cdot 2}\,\mathcal{A}_{\alpha\prime\theta}\,\big(\mathcal{A}^{\alpha\prime\theta} + 2\,\partial^\theta f^{\alpha\prime}\big)\Big)\Big)[t, x, y, z]\,dz\,dy\,dx\,dt$$

Wave operator

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

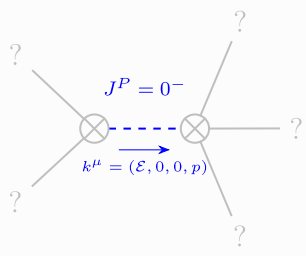
Saturated propagator

	$0^+_\cdot\sigma^\parallel$	$0^+_\cdot\tau^\parallel$	$0^+_\cdot\tau^\perp$	$0^-_\cdot\sigma^\parallel$	$1^+_\cdot\sigma^\parallel{}_{\alpha\beta}$	$1^+_\cdot\sigma^\perp{}_{\alpha\beta}$	$1^+_\cdot\tau^\parallel{}_{\alpha\beta}$	$1^-_\cdot\sigma^\parallel{}_\alpha$	$1^-_\cdot\sigma^\perp{}_\alpha$	$1^-_\cdot\tau^\parallel{}_\alpha$	$1^-_\cdot\tau^\perp{}_\alpha$	$2^+_\cdot\sigma^\parallel{}_{\alpha\beta}$	$2^+_\cdot\tau^\parallel{}_{\alpha\beta}$	$2^-_\cdot\sigma^\parallel{}_{\alpha\beta\chi}$
$0^+_\cdot\sigma^\parallel\,\dagger$	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	$\frac{1}{k^2\,r_{\cdot 2} + t_{\cdot 2}}$										
$1^+_\cdot\sigma^\parallel\,\dagger^{\alpha\beta}$					$\frac{6}{(3+k^2)^2\,t_{\cdot 2}}$	$\frac{3\,\sqrt{2}}{(3+k^2)^2\,t_{\cdot 2}}$	$\frac{3\,i\,\sqrt{2}\,k}{(3+k^2)^2\,t_{\cdot 2}}$	0	0	0	0			
$1^+_\cdot\sigma^\perp\,\dagger^{\alpha\beta}$					$\frac{3\,\sqrt{2}}{(3+k^2)^2\,t_{\cdot 2}}$	$\frac{3}{(3+k^2)^2\,t_{\cdot 2}}$	$\frac{3\,i\,k}{(3+k^2)^2\,t_{\cdot 2}}$	0	0	0	0			
$1^+_\cdot\tau^\parallel\,\dagger^{\alpha\beta}$					$-\frac{3\,i\,\sqrt{2}\,k}{(3+k^2)^2\,t_{\cdot 2}}$	$-\frac{3\,i\,k}{(3+k^2)^2\,t_{\cdot 2}}$	$\frac{3\,k^2}{(3+k^2)^2\,t_{\cdot 2}}$	0	0	0	0			
$1^-_\cdot\sigma^\parallel\,\dagger^{\alpha}$					0	0	0	$-\frac{2}{3\,k^2\,r_{\cdot 3}}$	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			
$2^+_\cdot\sigma^\parallel\,\dagger^{\alpha\beta}$												$-\frac{2}{3\,k^2\,r_{\cdot 3}}$	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
$i\,k\;1^+_\cdot\sigma^\parallel{}^{\alpha\beta} + 1^+_\cdot\tau^\parallel{}^{\alpha\beta} == 0$	$\partial_\chi\partial^\alpha\tau\,(\Delta+\mathcal{K})^{\beta\chi} + \partial_\chi\partial^\beta\tau\,(\Delta+\mathcal{K})^{\chi\alpha} + \partial_\chi\partial^\chi\tau\,(\Delta+\mathcal{K})^{\alpha\beta} + \partial_\delta\partial_\chi\partial^\beta\sigma^{\chi\alpha\delta} + \partial_\delta\partial^\delta\partial_\chi\sigma^{\alpha\beta\chi} == \partial_\chi\partial^\alpha\tau\,(\Delta+\mathcal{K})^{\chi\beta} + \partial_\chi\partial^\beta\tau\,(\Delta+\mathcal{K})^{\alpha\chi} + \partial_\chi\partial^\chi\tau\,(\Delta+\mathcal{K})^{\beta\alpha} + \partial_\delta\partial_\chi\partial^\alpha\sigma^{\chi\beta\delta} + \partial_\delta\partial^\delta\partial_\chi\sigma^{\beta\alpha\chi}$	3
$1^+_\cdot\sigma^\parallel{}^{\alpha\beta} == 1^+_\cdot\sigma^\perp{}^{\alpha\beta}$	$3\,\partial_\delta\partial_\chi\partial^\alpha\sigma^{\chi\beta\delta} + \partial_\delta\partial^\delta\partial_\chi\sigma^{\beta\alpha\chi} + 2\,\partial_\delta\partial^\delta\partial_\chi\sigma^{\chi\alpha\beta} == 3\,\partial_\delta\partial_\chi\partial^\beta\sigma^{\chi\alpha\delta} + \partial_\delta\partial^\delta\partial_\chi\sigma^{\alpha\beta\chi}$	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^\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^\chi\sigma^{\alpha\beta\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^{\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:		28

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

(There are no massless particles)

Gauge symmetries

(Not yet implemented in PSALTer)

Unitarity conditions

$r_{\cdot 2} < 0\;\&\&\;t_{\cdot 2} > 0$

Validity assumptions

(Not yet implemented in PSALTer)