PSALTer results panel

$$S == \int\int\int\int \Big(\mathcal{A}^{\alpha\beta\chi}\ \sigma_{\alpha\beta\chi} + f^{\alpha\beta}\ \tau\,(\Delta+\mathcal{K})_{\alpha\beta} - \frac{1}{2}\,\alpha_{0}\Big(\mathcal{A}_{\alpha\chi\beta}\ \mathcal{A}^{\alpha\beta\chi} + \mathcal{A}^{\alpha\beta}{}_{\alpha}\ \mathcal{A}_{\beta}{}^{\chi}{}_{\chi} + 2\ f^{\alpha\beta}\ \partial_{\beta}\mathcal{A}_{\alpha}{}^{\chi}{}_{\chi} - 2\ \partial_{\beta}\mathcal{A}^{\alpha\beta}{}_{\alpha} - 2\ f^{\alpha\beta}\ \partial_{\chi}\mathcal{A}_{\alpha}{}^{\chi}{}_{\beta} + 2\ f^{\alpha}{}_{\alpha}\ \partial_{\chi}\mathcal{A}^{\beta\chi}{}_{\beta}\Big) + \beta_{1}\Big(2\ \mathcal{A}^{\alpha\beta}{}_{\alpha}\ \mathcal{A}_{\beta}{}^{\chi}{}_{\chi} - 4\ \mathcal{A}_{\alpha}{}^{\chi}{}_{\chi}\ \partial_{\beta}f^{\alpha\beta} + 4\ \mathcal{A}_{\beta}{}^{\chi}{}_{\chi}\ \partial^{\beta}f^{\alpha}{}_{\alpha} - 2\ \partial_{\beta}f^{\chi}{}_{\chi}\ \partial^{\beta}f^{\alpha}{}_{\alpha} - 2\ \partial_{\beta}f^{\alpha\beta}\ \partial_{\chi}f_{\alpha}{}^{\chi} + 4\ \partial^{\beta}f^{\alpha}{}_{\alpha}\ \partial_{\chi}f_{\beta}{}^{\chi} - 2\ \partial_{\alpha}f_{\beta\chi}\ \partial^{\chi}f^{\alpha\beta} - \partial_{\alpha}f_{\chi\beta}\ \partial^{\chi}f^{\alpha\beta} + \partial_{\beta}f_{\alpha\chi}\ \partial^{\chi}f^{\alpha\beta} + \partial_{\chi}f_{\alpha\beta}\ \partial^{\chi}f^{\alpha\beta} + \partial_{\chi}f_{\beta\alpha}\ \partial^{\chi}f^{\alpha\beta} + 2\ \mathcal{A}_{\alpha\chi\beta}\ \big(\mathcal{A}^{\alpha\beta\chi} + 2\ \partial^{\chi}f^{\alpha\beta}\big)\Big) + \frac{1}{3}\,\alpha_{3}\Big(4\ \partial_{\beta}\mathcal{A}_{\alpha\chi\delta} - 2\ \partial_{\beta}\mathcal{A}_{\alpha\delta\chi} + 2\ \partial_{\beta}\mathcal{A}_{\chi\delta\alpha} - \partial_{\chi}\mathcal{A}_{\alpha\beta\delta} + \partial_{\delta}\mathcal{A}_{\alpha\beta\chi} - 2\ \partial_{\delta}\mathcal{A}_{\alpha\chi\beta}\Big)\,\partial^{\delta}\mathcal{A}^{\alpha\beta\chi}\Big)[t,\ x,\ y,\ z]\,dz\,dy\,dx\,dt$$

Wave operator

	$0^+_\cdot\mathcal{A}^{\parallel}$	$0^+_\cdot f^{\parallel}$	$0^+_\cdot f^{\perp}$	$0^-_\cdot\mathcal{A}^{\parallel}$
$0^+_\cdot\mathcal{A}^{\parallel}\,\dagger$	$\frac{1}{2}\left(\alpha_{0} - 4\,\beta_{1}\right)$	$-\frac{i\left(\alpha_{0}-4\,\beta_{1}\right)k}{\sqrt{2}}$	0	0
$0^+_\cdot f^{\parallel}\,\dagger$	$\frac{i\left(\alpha_{0}-4\,\beta_{1}\right)k}{\sqrt{2}}$	$-4\,\beta_{1}\,k^2$	0	0
$0^+_\cdot f^{\perp}\,\dagger$	0	0	0	0
$0^-_\cdot\mathcal{A}^{\parallel}\,\dagger$	0	0	0	$\frac{\alpha_{0}}{2} - 2\,\beta_{1} + \alpha_{3}\,k^2$

	$1^+_\cdot\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$1^+_\cdot\mathcal{A}^{\perp}{}_{\alpha\beta}$	$1^+_\cdot f^{\parallel}{}_{\alpha\beta}$	$1^-_\cdot\mathcal{A}^{\parallel}{}_{\alpha}$	$1^-_\cdot\mathcal{A}^{\perp}{}_{\alpha}$	$1^-_\cdot f^{\parallel}{}_{\alpha}$	$1^-_\cdot f^{\perp}{}_{\alpha}$
$1^+_\cdot\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{1}{4}\left(\alpha_{0} - 4\,\beta_{1}\right)$	$\frac{\alpha_{0}-4\,\beta_{1}}{2\,\sqrt{2}}$	$\frac{i\left(\alpha_{0}-4\,\beta_{1}\right)k}{2\,\sqrt{2}}$	0	0	0	0
$1^+_\cdot\mathcal{A}^{\perp}\,\dagger^{\alpha\beta}$	$\frac{\alpha_{0}-4\,\beta_{1}}{2\,\sqrt{2}}$	0	0	0	0	0	0
$1^+_\cdot f^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{i\left(\alpha_{0}-4\,\beta_{1}\right)k}{2\,\sqrt{2}}$	0	0	0	0	0	0
$1^-_\cdot\mathcal{A}^{\parallel}\,\dagger^{\alpha}$	0	0	0	$\frac{1}{4}\left(\alpha_{0} - 4\,\beta_{1}\right)$	$-\frac{\alpha_{0}-4\,\beta_{1}}{2\,\sqrt{2}}$	0	$-\frac{1}{2}\,i\left(\alpha_{0} - 4\,\beta_{1}\right)k$
$1^-_\cdot\mathcal{A}^{\perp}\,\dagger^{\alpha}$	0	0	0	$-\frac{\alpha_{0}-4\,\beta_{1}}{2\,\sqrt{2}}$	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	$\frac{1}{2}\,i\left(\alpha_{0} - 4\,\beta_{1}\right)k$	0	0	0

	$2^+_\cdot\mathcal{A}^{\parallel}{}_{\alpha\beta}$	$2^+_\cdot f^{\parallel}{}_{\alpha\beta}$	$2^-_\cdot\mathcal{A}^{\parallel}{}_{\alpha\beta\chi}$
$2^+_\cdot\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{\alpha_{0}}{4} + \beta_{1}$	$\frac{i\left(\alpha_{0}-4\,\beta_{1}\right)k}{2\,\sqrt{2}}$	0
$2^+_\cdot f^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{i\left(\alpha_{0}-4\,\beta_{1}\right)k}{2\,\sqrt{2}}$	$2\,\beta_{1}\,k^2$	0
$2^-_\cdot\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	$-\frac{\alpha_{0}}{4} + \beta_{1}$

Saturated propagator

	$0^+_\cdot\sigma^{\parallel}$	$0^+_\cdot\tau^{\parallel}$	$0^+_\cdot\tau^{\perp}$	$0^-_\cdot\sigma^{\parallel}$
$0^+_\cdot\sigma^{\parallel}\,\dagger$	$\frac{8\,\beta_{1}}{\alpha_{0}{}^2 - 4\,\alpha_{0}\,\beta_{1}}$	$-\frac{i\,\sqrt{2}}{\alpha_{0}\,k}$	0	0
$0^+_\cdot\tau^{\parallel}\,\dagger$	$\frac{i\,\sqrt{2}}{\alpha_{0}\,k}$	$-\frac{1}{\alpha_{0}\,k^2}$	0	0
$0^+_\cdot\tau^{\perp}\,\dagger$	0	0	0	0
$0^-_\cdot\sigma^{\parallel}\,\dagger$	0	0	0	$\frac{2}{\alpha_{0} - 4\,\beta_{1} + 2\,\alpha_{3}\,k^2}$

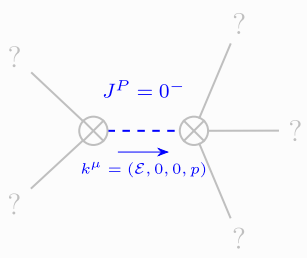
	$1^+_\cdot\sigma^{\parallel}{}_{\alpha\beta}$	$1^+_\cdot\sigma^{\perp}{}_{\alpha\beta}$	$1^+_\cdot\tau^{\parallel}{}_{\alpha\beta}$	$1^-_\cdot\sigma^{\parallel}{}_{\alpha}$	$1^-_\cdot\sigma^{\perp}{}_{\alpha}$	$1^-_\cdot\tau^{\parallel}{}_{\alpha}$	$1^-_\cdot\tau^{\perp}{}_{\alpha}$
$1^+_\cdot\sigma^{\parallel}\,\dagger^{\alpha\beta}$	0	$\frac{2\,\sqrt{2}}{\left(\alpha_{0}-4\,\beta_{1}\right)\left(1+k^2\right)}$	$\frac{2\,i\,\sqrt{2}\,k}{\left(\alpha_{0}-4\,\beta_{1}\right)\left(1+k^2\right)}$	0	0	0	0
$1^+_\cdot\sigma^{\perp}\,\dagger^{\alpha\beta}$	$\frac{2\,\sqrt{2}}{\left(\alpha_{0}-4\,\beta_{1}\right)\left(1+k^2\right)}$	$-\frac{2}{\left(\alpha_{0}-4\,\beta_{1}\right)\left(1+k^2\right)^2}$	$-\frac{2\,i\,k}{\left(\alpha_{0}-4\,\beta_{1}\right)\left(1+k^2\right)^2}$	0	0	0	0
$1^+_\cdot\tau^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{2\,i\,\sqrt{2}\,k}{\left(\alpha_{0}-4\,\beta_{1}\right)\left(1+k^2\right)}$	$\frac{2\,i\,k}{\left(\alpha_{0}-4\,\beta_{1}\right)\left(1+k^2\right)^2}$	$-\frac{2\,k^2}{\left(\alpha_{0}-4\,\beta_{1}\right)\left(1+k^2\right)^2}$	0	0	0	0
$1^-_\cdot\sigma^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	$-\frac{2\,\sqrt{2}}{\left(\alpha_{0}-4\,\beta_{1}\right)\left(1+2\,k^2\right)}$	0	$-\frac{4\,i\,k}{\left(\alpha_{0}-4\,\beta_{1}\right)\left(1+2\,k^2\right)}$
$1^-_\cdot\sigma^{\perp}\,\dagger^{\alpha}$	0	0	0	$-\frac{2\,\sqrt{2}}{\left(\alpha_{0}-4\,\beta_{1}\right)\left(1+2\,k^2\right)}$	$-\frac{2}{\left(\alpha_{0}-4\,\beta_{1}\right)\left(1+2\,k^2\right)^2}$	0	$-\frac{2\,i\,\sqrt{2}\,k}{\left(\alpha_{0}-4\,\beta_{1}\right)\left(1+2\,k^2\right)^2}$
$1^-_\cdot\tau^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_\cdot\tau^{\perp}\,\dagger^{\alpha}$	0	0	0	$\frac{4\,i\,k}{\left(\alpha_{0}-4\,\beta_{1}\right)\left(1+2\,k^2\right)}$	$\frac{2\,i\,\sqrt{2}\,k}{\left(\alpha_{0}-4\,\beta_{1}\right)\left(1+2\,k^2\right)^2}$	0	$-\frac{4\,k^2}{\left(\alpha_{0}-4\,\beta_{1}\right)\left(1+2\,k^2\right)^2}$

	$2^+_\cdot\sigma^{\parallel}{}_{\alpha\beta}$	$2^+_\cdot\tau^{\parallel}{}_{\alpha\beta}$	$2^-_\cdot\sigma^{\parallel}{}_{\alpha\beta\chi}$
$2^+_\cdot\sigma^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{16\,\beta_{1}}{\alpha_{0}{}^2 - 4\,\alpha_{0}\,\beta_{1}}$	$\frac{2\,i\,\sqrt{2}}{\alpha_{0}\,k}$	0
$2^+_\cdot\tau^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{2\,i\,\sqrt{2}}{\alpha_{0}\,k}$	$\frac{2}{\alpha_{0}\,k^2}$	0
$2^-_\cdot\sigma^{\parallel}\,\dagger^{\alpha\beta\chi}$	0	0	$\frac{1}{-\frac{\alpha_{0}}{4} + \beta_{1}}$

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
$2\,i\,k\ 1^-_\cdot\sigma^{\perp}{}^{\alpha} + 1^-_\cdot\tau^{\perp}{}^{\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau\,(\Delta+\mathcal{K})^{\alpha\beta} + 2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial_{\beta}\sigma^{\beta\alpha\chi}$	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
$i\,k\ 1^+_\cdot\sigma^{\perp}{}^{\alpha\beta} + 1^+_\cdot\tau^{\parallel}{}^{\alpha\beta} == 0$	$\partial_{\chi}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\beta\chi} + \partial_{\chi}\partial^{\beta}\tau\,(\Delta+\mathcal{K})^{\chi\alpha} + \partial_{\chi}\partial^{\chi}\tau\,(\Delta+\mathcal{K})^{\alpha\beta} + 2\,\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta} + 2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\chi\alpha\beta} == \partial_{\chi}\partial^{\alpha}\tau\,(\Delta+\mathcal{K})^{\chi\beta} + \partial_{\chi}\partial^{\beta}\tau\,(\Delta+\mathcal{K})^{\alpha\chi} + \partial_{\chi}\partial^{\chi}\tau\,(\Delta+\mathcal{K})^{\beta\alpha} + 2\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta}$	3
Total expected gauge generators:		10

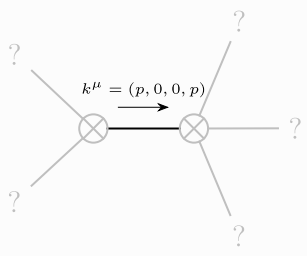
Massive spectrum



Massive particle

Pole residue:	$-\frac{1}{\alpha_{3}} > 0$
Square mass:	$-\frac{\alpha_{0}-4\,\beta_{1}}{2\,\alpha_{3}} > 0$
Spin:	0
Parity:	Odd

Massless spectrum



Massless particle

Pole residue:	$\frac{p^2}{\alpha_{0}} > 0$
Polarisations:	2

Gauge symmetries

(Not yet implemented in PSALTer)

Unitarity conditions

$$\alpha_{0} > 0\ \&\&\ \alpha_{3} < 0\ \&\&\ \beta_{1} < \frac{\alpha_{0}}{4}$$

Validity assumptions

(Not yet implemented in PSALTer)