PSALTer results panel

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

Wave operator

$$\begin{array}{c|ccc|c} & {}^{0^+}\mathcal{A}^{\parallel} & {}^{0^+}f^{\parallel} & {}^{0^+}f^{\perp} & {}^{0^-}\mathcal{A}^{\parallel} \\ \hline {}^{0^+}\mathcal{A}^{\parallel}{}^{\dagger} & 0 & 0 & 0 & 0 \\ {}^{0^+}f^{\parallel}{}^{\dagger} & 0 & 0 & 0 & 0 \\ {}^{0^+}f^{\perp}{}^{\dagger} & 0 & 0 & 0 & 0 \\ \hline {}^{0^-}\mathcal{A}^{\parallel}{}^{\dagger} & 0 & 0 & 0 & 0 \end{array}$$

$$\begin{array}{c|ccc|cccc} & {}^{1^+}\mathcal{A}^{\parallel}{}_{\alpha\beta} & {}^{1^+}\mathcal{A}^{\perp}{}_{\alpha\beta} & {}^{1^+}f^{\parallel}{}_{\alpha\beta} & {}^{1^-}\mathcal{A}^{\parallel}{}_{\alpha} & {}^{1^-}\mathcal{A}^{\perp}{}_{\alpha} & {}^{1^-}f^{\parallel}{}_{\alpha} & {}^{1^-}f^{\perp}{}_{\alpha} \\ \hline {}^{1^+}\mathcal{A}^{\parallel}{}^{\dagger\alpha\beta} & k^2 (2 r_{1} + r_{5}) & 0 & 0 & 0 & 0 & 0 & 0 \\ {}^{1^+}\mathcal{A}^{\perp}{}^{\dagger\alpha\beta} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ {}^{1^+}f^{\parallel}{}^{\dagger\alpha\beta} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline {}^{1^-}\mathcal{A}^{\parallel}{}^{\dagger\alpha} & 0 & 0 & 0 & k^2 (r_{1} + r_{5}) & 0 & 0 & 0 \\ {}^{1^-}\mathcal{A}^{\perp}{}^{\dagger\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ {}^{1^-}f^{\parallel}{}^{\dagger\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ {}^{1^-}f^{\perp}{}^{\dagger\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{array}$$

$$\begin{array}{c|cc|c} & {}^{2^+}\mathcal{A}^{\parallel}{}_{\alpha\beta} & {}^{2^+}f^{\parallel}{}_{\alpha\beta} & {}^{2^-}\mathcal{A}^{\parallel}{}_{\alpha\beta\chi} \\ \hline {}^{2^+}\mathcal{A}^{\parallel}{}^{\dagger\alpha\beta} & 0 & 0 & 0 \\ {}^{2^+}f^{\parallel}{}^{\dagger\alpha\beta} & 0 & 0 & 0 \\ \hline {}^{2^-}\mathcal{A}^{\parallel}{}^{\dagger\alpha\beta\chi} & 0 & 0 & k^2 r_{1} \end{array}$$

Saturated propagator

$$\begin{array}{c|ccc|c} & {}^{0^+}\sigma^{\parallel} & {}^{0^+}\tau^{\parallel} & {}^{0^+}\tau^{\perp} & {}^{0^-}\sigma^{\parallel} \\ \hline {}^{0^+}\sigma^{\parallel}{}^{\dagger} & 0 & 0 & 0 & 0 \\ {}^{0^+}\tau^{\parallel}{}^{\dagger} & 0 & 0 & 0 & 0 \\ {}^{0^+}\tau^{\perp}{}^{\dagger} & 0 & 0 & 0 & 0 \\ \hline {}^{0^-}\sigma^{\parallel}{}^{\dagger} & 0 & 0 & 0 & 0 \end{array}$$

$$\begin{array}{c|ccc|cccc} & {}^{1^+}\sigma^{\parallel}{}_{\alpha\beta} & {}^{1^+}\sigma^{\perp}{}_{\alpha\beta} & {}^{1^+}\tau^{\parallel}{}_{\alpha\beta} & {}^{1^-}\sigma^{\parallel}{}_{\alpha} & {}^{1^-}\sigma^{\perp}{}_{\alpha} & {}^{1^-}\tau^{\parallel}{}_{\alpha} & {}^{1^-}\tau^{\perp}{}_{\alpha} \\ \hline {}^{1^+}\sigma^{\parallel}{}^{\dagger\alpha\beta} & \frac{1}{k^2 (2 r_{1} + r_{5})} & 0 & 0 & 0 & 0 & 0 & 0 \\ {}^{1^+}\sigma^{\perp}{}^{\dagger\alpha\beta} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ {}^{1^+}\tau^{\parallel}{}^{\dagger\alpha\beta} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline {}^{1^-}\sigma^{\parallel}{}^{\dagger\alpha} & 0 & 0 & 0 & \frac{1}{k^2 (r_{1} + r_{5})} & 0 & 0 & 0 \\ {}^{1^-}\sigma^{\perp}{}^{\dagger\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ {}^{1^-}\tau^{\parallel}{}^{\dagger\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ {}^{1^-}\tau^{\perp}{}^{\dagger\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{array}$$

$$\begin{array}{c|cc|c} & {}^{2^+}\sigma^{\parallel}{}_{\alpha\beta} & {}^{2^+}\tau^{\parallel}{}_{\alpha\beta} & {}^{2^-}\sigma^{\parallel}{}_{\alpha\beta\chi} \\ \hline {}^{2^+}\sigma^{\parallel}{}^{\dagger\alpha\beta} & 0 & 0 & 0 \\ {}^{2^+}\tau^{\parallel}{}^{\dagger\alpha\beta} & 0 & 0 & 0 \\ \hline {}^{2^-}\sigma^{\parallel}{}^{\dagger\alpha\beta\chi} & 0 & 0 & \frac{1}{k^2 r_{1}} \end{array}$$

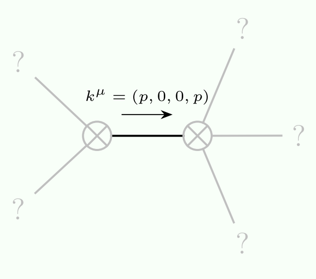
Source constraints

Spin-parity form	Covariant form	Multiplicities
${}^{0^-}\sigma^{\parallel} == 0$	$\epsilon\eta_{\alpha\beta\chi\delta}\ \partial^{\delta}\sigma^{\alpha\beta\chi} == 0$	1
${}^{0^+}\tau^{\perp} == 0$	$\partial_{\beta}\partial_{\alpha}\tau(\Delta+\mathcal{K})^{\alpha\beta} == 0$	1
${}^{0^+}\tau^{\parallel} == 0$	$\partial_{\beta}\partial_{\alpha}\tau(\Delta+\mathcal{K})^{\alpha\beta} == \partial_{\beta}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\alpha}{}_{\alpha}$	1
${}^{0^+}\sigma^{\parallel} == 0$	$\partial_{\beta}\sigma^{\alpha}{}_{\alpha}{}^{\beta} == 0$	1
${}^{1^-}\tau^{\perp\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau(\Delta+\mathcal{K})^{\alpha\beta}$	3
${}^{1^-}\tau^{\parallel\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau(\Delta+\mathcal{K})^{\beta\alpha}$	3
${}^{1^-}\sigma^{\perp\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\sigma^{\beta\alpha\chi} == 0$	3
${}^{1^+}\tau^{\parallel\alpha\beta} == 0$	$\partial_{\chi}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\beta\chi} + \partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\chi\alpha} + \partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\alpha\beta} ==$ $\partial_{\chi}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi\beta} + \partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\alpha\chi} + \partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\beta\alpha}$	3
${}^{1^+}\sigma^{\perp\alpha\beta} == 0$	$\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta} + \partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\chi\alpha\beta} == \partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta}$	3
${}^{2^+}\tau^{\parallel\alpha\beta} == 0$	$4\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi\delta} + 2\,\partial_{\delta}\partial^{\delta}\partial^{\beta}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi}{}_{\chi} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\alpha\beta} +$ $3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau(\Delta+\mathcal{K})^{\beta\alpha} + 2\ \eta^{\alpha\beta}\ \partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\tau(\Delta+\mathcal{K})^{\chi\delta} ==$ $3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\beta\chi} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau(\Delta+\mathcal{K})^{\chi\beta} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\alpha\chi} +$ $3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau(\Delta+\mathcal{K})^{\chi\alpha} + 2\ \eta^{\alpha\beta}\ \partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\tau(\Delta+\mathcal{K})^{\chi}{}_{\chi}$	5
${}^{2^+}\sigma^{\parallel\alpha\beta} == 0$	$3\,\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta} + 3\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta} + 2\ \eta^{\alpha\beta}\ \partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\sigma^{\chi}{}_{\chi}{}^{\delta} ==$ $2\,\partial_{\delta}\partial^{\beta}\partial^{\alpha}\sigma^{\chi}{}_{\chi}{}^{\delta} + 3\,(\partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\alpha\beta\chi} + \partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\beta\alpha\chi})$	5
Total expected gauge generators:		29

Massive spectrum

(No particles)

Massless spectrum



Massless particle

Pole residue:	$-\frac{3}{r_{1}} - \frac{3}{r_{1}+r_{5}} + \frac{8}{2 r_{1}+r_{5}} > 0$
Polarisations:	2

Unitarity conditions

$(r_{1} < 0\ \&\&\ (r_{5} < -r_{1}\ \|\|\ r_{5} > -2 r_{1}))\ \|\|\ (r_{1} > 0\ \&\&\ -2 r_{1} < r_{5} < -r_{1})$