PSALTer results panel

$$\mathcal{S} == \iiiint \Big(\mathcal{A}^{\alpha\beta\chi}\ \sigma_{\alpha\beta\chi} + f^{\alpha\beta}\ \tau(\Delta+\mathcal{K})_{\alpha\beta} + t_{\dot{1}} \big(\mathcal{A}_{\prime\zeta\theta}\ \mathcal{A}^{\prime\theta\zeta} + \mathcal{A}^{\prime\theta}{}_{\prime}\ \mathcal{A}_{\theta}{}^{\zeta}{}_{\zeta} + 2\ f^{\prime\theta}\ \partial_\theta \mathcal{A}_{\prime}{}^{\zeta}{}_{\zeta} - 2\,\partial_\theta \mathcal{A}^{\prime\theta}{}_{\prime} - 2\ f^{\prime\theta}\ \partial_\zeta \mathcal{A}_{\prime}{}^{\zeta}{}_{\theta} + 2\ f^{\prime}{}_{\prime}\ \partial_\zeta \mathcal{A}^{\theta\zeta}{}_{\theta} \big) \Big)[t,\ x,\ y,\ z]\, dz\, dy\, dx\, dt$$

Wave operator

$$\begin{array}{c|cccc}
 & {}^{0^+}\mathcal{A}^{\parallel} & {}^{0^+}f^{\parallel} & {}^{0^+}f^{\perp} & {}^{0^-}\mathcal{A}^{\parallel} \\
\hline
{}^{0^+}\mathcal{A}^{\parallel}\,\dagger & -t_{\dot{1}} & i\sqrt{2}\,k\,t_{\dot{1}} & 0 & 0 \\
{}^{0^+}f^{\parallel}\,\dagger & -i\sqrt{2}\,k\,t_{\dot{1}} & 0 & 0 & 0 \\
{}^{0^+}f^{\perp}\,\dagger & 0 & 0 & 0 & 0 \\
{}^{0^-}\mathcal{A}^{\parallel}\,\dagger & 0 & 0 & 0 & -t_{\dot{1}}
\end{array}$$

$$\begin{array}{c|ccccccc}
 & {}^{1^+}\mathcal{A}^{\parallel}{}_{\alpha\beta} & {}^{1^+}\mathcal{A}^{\perp}{}_{\alpha\beta} & {}^{1^+}f^{\parallel}{}_{\alpha\beta} & {}^{1^-}\mathcal{A}^{\parallel}{}_{\alpha} & {}^{1^-}\mathcal{A}^{\perp}{}_{\alpha} & {}^{1^-}f^{\parallel}{}_{\alpha} & {}^{1^-}f^{\perp}{}_{\alpha} \\
\hline
{}^{1^+}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta} & -\frac{t_{\dot{1}}}{2} & -\frac{t_{\dot{1}}}{\sqrt{2}} & -\frac{i\,k\,t_{\dot{1}}}{\sqrt{2}} & 0 & 0 & 0 & 0 \\
{}^{1^+}\mathcal{A}^{\perp}\,\dagger^{\alpha\beta} & -\frac{t_{\dot{1}}}{\sqrt{2}} & 0 & 0 & 0 & 0 & 0 & 0 \\
{}^{1^+}f^{\parallel}\,\dagger^{\alpha\beta} & \frac{i\,k\,t_{\dot{1}}}{\sqrt{2}} & 0 & 0 & 0 & 0 & 0 & 0 \\
{}^{1^-}\mathcal{A}^{\parallel}\,\dagger^{\alpha} & 0 & 0 & 0 & -\frac{t_{\dot{1}}}{2} & \frac{t_{\dot{1}}}{\sqrt{2}} & 0 & i\,k\,t_{\dot{1}} \\
{}^{1^-}\mathcal{A}^{\perp}\,\dagger^{\alpha} & 0 & 0 & 0 & \frac{t_{\dot{1}}}{\sqrt{2}} & 0 & 0 & 0 \\
{}^{1^-}f^{\parallel}\,\dagger^{\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
{}^{1^-}f^{\perp}\,\dagger^{\alpha} & 0 & 0 & 0 & -i\,k\,t_{\dot{1}} & 0 & 0 & 0
\end{array}$$

$$\begin{array}{c|ccc}
 & {}^{2^+}\mathcal{A}^{\parallel}{}_{\alpha\beta} & {}^{2^+}f^{\parallel}{}_{\alpha\beta} & {}^{2^-}\mathcal{A}^{\parallel}{}_{\alpha\beta\chi} \\
\hline
{}^{2^+}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta} & \frac{t_{\dot{1}}}{2} & -\frac{i\,k\,t_{\dot{1}}}{\sqrt{2}} & 0 \\
{}^{2^+}f^{\parallel}\,\dagger^{\alpha\beta} & \frac{i\,k\,t_{\dot{1}}}{\sqrt{2}} & 0 & 0 \\
{}^{2^-}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta\chi} & 0 & 0 & \frac{t_{\dot{1}}}{2}
\end{array}$$

Saturated propagator

$$\begin{array}{c|cccc}
 & {}^{0^+}\sigma^{\parallel} & {}^{0^+}\tau^{\parallel} & {}^{0^+}\tau^{\perp} & {}^{0^-}\sigma^{\parallel} \\
\hline
{}^{0^+}\sigma^{\parallel}\,\dagger & 0 & \frac{i}{\sqrt{2}\,k\,t_{\dot{1}}} & 0 & 0 \\
{}^{0^+}\tau^{\parallel}\,\dagger & -\frac{i}{\sqrt{2}\,k\,t_{\dot{1}}} & \frac{1}{2\,k^2\,t_{\dot{1}}} & 0 & 0 \\
{}^{0^+}\tau^{\perp}\,\dagger & 0 & 0 & 0 & 0 \\
{}^{0^-}\sigma^{\parallel}\,\dagger & 0 & 0 & 0 & -\frac{1}{t_{\dot{1}}}
\end{array}$$

$$\begin{array}{c|ccccccc}
 & {}^{1^+}\sigma^{\parallel}{}_{\alpha\beta} & {}^{1^+}\sigma^{\perp}{}_{\alpha\beta} & {}^{1^+}\tau^{\parallel}{}_{\alpha\beta} & {}^{1^-}\sigma^{\parallel}{}_{\alpha} & {}^{1^-}\sigma^{\perp}{}_{\alpha} & {}^{1^-}\tau^{\parallel}{}_{\alpha} & {}^{1^-}\tau^{\perp}{}_{\alpha} \\
\hline
{}^{1^+}\sigma^{\parallel}\,\dagger^{\alpha\beta} & 0 & -\frac{\sqrt{2}}{t_{\dot{1}}+k^2\,t_{\dot{1}}} & -\frac{i\sqrt{2}\,k}{t_{\dot{1}}+k^2\,t_{\dot{1}}} & 0 & 0 & 0 & 0 \\
{}^{1^+}\sigma^{\perp}\,\dagger^{\alpha\beta} & -\frac{\sqrt{2}}{t_{\dot{1}}+k^2\,t_{\dot{1}}} & \frac{1}{(1+k^2)^2\,t_{\dot{1}}} & \frac{i\,k}{(1+k^2)^2\,t_{\dot{1}}} & 0 & 0 & 0 & 0 \\
{}^{1^+}\tau^{\parallel}\,\dagger^{\alpha\beta} & \frac{i\sqrt{2}\,k}{t_{\dot{1}}+k^2\,t_{\dot{1}}} & -\frac{i\,k}{(1+k^2)^2\,t_{\dot{1}}} & \frac{k^2}{(1+k^2)^2\,t_{\dot{1}}} & 0 & 0 & 0 & 0 \\
{}^{1^-}\sigma^{\parallel}\,\dagger^{\alpha} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{t_{\dot{1}}+2\,k^2\,t_{\dot{1}}} & 0 & \frac{2\,i\,k}{t_{\dot{1}}+2\,k^2\,t_{\dot{1}}} \\
{}^{1^-}\sigma^{\perp}\,\dagger^{\alpha} & 0 & 0 & 0 & \frac{\sqrt{2}}{t_{\dot{1}}+2\,k^2\,t_{\dot{1}}} & \frac{1}{(1+2\,k^2)^2\,t_{\dot{1}}} & 0 & \frac{i\sqrt{2}\,k}{(1+2\,k^2)^2\,t_{\dot{1}}} \\
{}^{1^-}\tau^{\parallel}\,\dagger^{\alpha} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
{}^{1^-}\tau^{\perp}\,\dagger^{\alpha} & 0 & 0 & 0 & -\frac{2\,i\,k}{t_{\dot{1}}+2\,k^2\,t_{\dot{1}}} & -\frac{i\sqrt{2}\,k}{(1+2\,k^2)^2\,t_{\dot{1}}} & 0 & \frac{2\,k^2}{(1+2\,k^2)^2\,t_{\dot{1}}}
\end{array}$$

$$\begin{array}{c|ccc}
 & {}^{2^+}\sigma^{\parallel}{}_{\alpha\beta} & {}^{2^+}\tau^{\parallel}{}_{\alpha\beta} & {}^{2^-}\sigma^{\parallel}{}_{\alpha\beta\chi} \\
\hline
{}^{2^+}\sigma^{\parallel}\,\dagger^{\alpha\beta} & 0 & -\frac{i\sqrt{2}}{k\,t_{\dot{1}}} & 0 \\
{}^{2^+}\tau^{\parallel}\,\dagger^{\alpha\beta} & \frac{i\sqrt{2}}{k\,t_{\dot{1}}} & -\frac{1}{k^2\,t_{\dot{1}}} & 0 \\
{}^{2^-}\sigma^{\parallel}\,\dagger^{\alpha\beta\chi} & 0 & 0 & \frac{2}{t_{\dot{1}}}
\end{array}$$

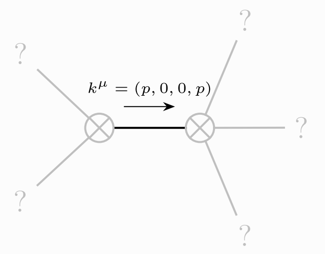
Source constraints

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

Massive spectrum

(There are no massive particles)

Massless spectrum



Massless particle

Pole residue:	$-\frac{p^2}{t_{\dot{1}}} > 0$
Polarisations:	2

Gauge symmetries

(Not yet implemented in PSALTer)

Unitarity conditions

$t_{\dot{1}} < 0$

Validity assumptions

(Not yet implemented in PSALTer)