PSALTer results panel

$$\mathcal{S} == \iiiint \left(h^{\alpha\beta}\ \mathcal{T}_{\alpha\beta} + \alpha_{2}\ \partial_{\alpha} h^{\alpha\beta}\ \partial_{\chi} h_{\beta}{}^{\chi} + \frac{1}{2}\ \alpha_{1} \left(\partial_{\beta} h^{\chi}{}_{\chi}\ \partial^{\beta} h^{\alpha}{}_{\alpha} - 2\ \partial^{\beta} h^{\alpha}{}_{\alpha}\ \partial_{\chi} h_{\beta}{}^{\chi} - \partial_{\chi} h_{\alpha\beta}\ \partial^{\chi} h^{\alpha\beta} \right) \right)[t,\ x,\ y,\ z]\ dz\ dy\ dx\ dt$$

Wave operator

$$\begin{array}{c|cc|c|c}
 & {}^{0^+}h^{\perp} & {}^{0^+}h^{\parallel} & {}^{1^-}h^{\perp}{}_{\alpha} & {}^{2^+}h^{\parallel}{}_{\alpha\beta} \\
\hline
{}^{0^+}h^{\perp}\dagger & \left(-\alpha_{1}+\alpha_{2}\right)k^{2} & 0 & & \\
{}^{0^+}h^{\parallel}\dagger & 0 & \alpha_{1}\ k^{2} & & \\
\hline
{}^{1^-}h^{\perp}\dagger^{\alpha} & & & \frac{1}{2}\left(-\alpha_{1}+\alpha_{2}\right)k^{2} & \\
\hline
{}^{2^+}h^{\parallel}\dagger^{\alpha\beta} & & & & -\frac{\alpha_{1}\ k^{2}}{2}
\end{array}$$

Saturated propagator

$$\begin{array}{c|cc|c|c}
 & {}^{0^+}\mathcal{T}^{\perp} & {}^{0^+}\mathcal{T}^{\parallel} & {}^{1^-}\mathcal{T}^{\perp}{}_{\alpha} & {}^{2^+}\mathcal{T}^{\parallel}{}_{\alpha\beta} \\
\hline
{}^{0^+}\mathcal{T}^{\perp}\dagger & \frac{1}{\left(-\alpha_{1}+\alpha_{2}\right)k^{2}} & 0 & & \\
{}^{0^+}\mathcal{T}^{\parallel}\dagger & 0 & \frac{1}{\alpha_{1}\ k^{2}} & & \\
\hline
{}^{1^-}\mathcal{T}^{\perp}\dagger^{\alpha} & & & -\frac{2}{\left(\alpha_{1}-\alpha_{2}\right)k^{2}} & \\
\hline
{}^{2^+}\mathcal{T}^{\parallel}\dagger^{\alpha\beta} & & & & -\frac{2}{\alpha_{1}\ k^{2}}
\end{array}$$

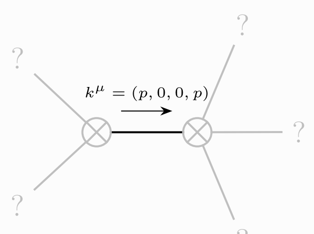
Source constraints

(There are no source constraints and no gauge symmetries)

Massive spectrum

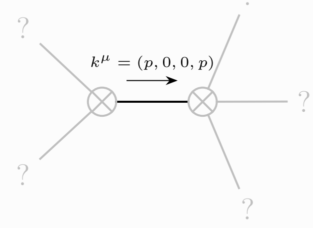
(There are no massive particles)

Massless spectrum



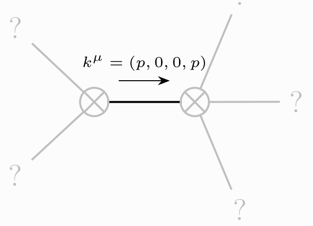
Massless particle

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



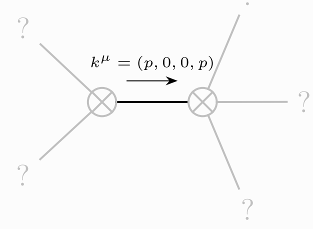
Massless particle

Pole residue:	$\frac{(-2\,\alpha_{1}+\alpha_{2})\,p^{2}}{\alpha_{1}\,(\alpha_{1}-\alpha_{2})} > 0$
Polarisations:	2



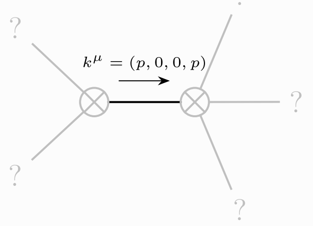
Massless particle

Pole residue:	$\frac{(2\,\alpha_{1}-\alpha_{2})\,p^{2}}{\alpha_{1}\,(\alpha_{1}-\alpha_{2})} > 0$
Polarisations:	2



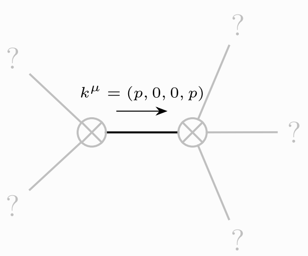
Massless particle

Pole residue:	$\frac{(-6\,\alpha_{1}+\alpha_{2})\,p^{2}}{\alpha_{1}\,(\alpha_{1}-\alpha_{2})} > 0$
Polarisations:	1



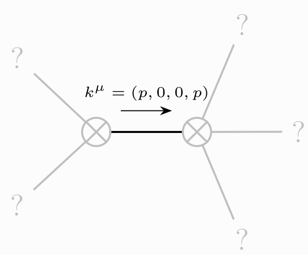
Massless particle

Pole residue:	$\frac{(6\,\alpha_{1}-\alpha_{2})\,p^{2}}{\alpha_{1}\,(\alpha_{1}-\alpha_{2})} > 0$
Polarisations:	1



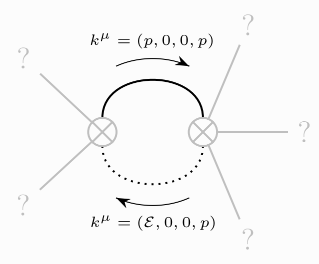
Massless particle

Pole residue:	$\frac{(-2\,\alpha_{1}+\alpha_{2}-\sqrt{20\,\alpha_{1}^{2}-36\,\alpha_{1}\,\alpha_{2}+17\,\alpha_{2}^{2}})\,p^{2}}{\alpha_{1}\,(\alpha_{1}-\alpha_{2})} > 0$
Polarisations:	1



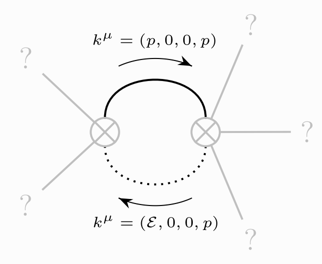
Massless particle

Pole residue:	$\frac{(-2\,\alpha_{1}+\alpha_{2}+\sqrt{20\,\alpha_{1}^{2}-36\,\alpha_{1}\,\alpha_{2}+17\,\alpha_{2}^{2}})\,p^{2}}{\alpha_{1}\,(\alpha_{1}-\alpha_{2})} > 0$
Polarisations:	1



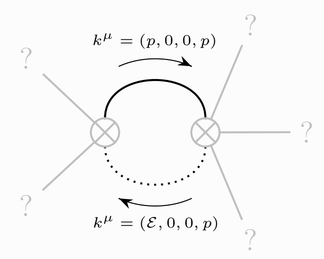
Quartic pole

Pole residue:	$0 < \frac{\alpha_{2}\,p^{4}}{\alpha_{1}^{2}-\alpha_{1}\,\alpha_{2}}\ \&\&\ \frac{\alpha_{2}\,p^{4}}{\alpha_{1}^{2}-\alpha_{1}\,\alpha_{2}} > 0$
Polarisations:	2



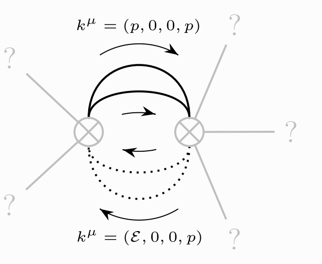
Quartic pole

Pole residue:	$0 < \frac{(6\,\alpha_{1}+3\,\alpha_{2}-\sqrt{3}\ \sqrt{76\,\alpha_{1}^{2}-116\,\alpha_{1}\,\alpha_{2}+83\,\alpha_{2}^{2}})\,p^{4}}{\alpha_{1}\,(\alpha_{1}-\alpha_{2})}\ \&\&\ \frac{(6\,\alpha_{1}+3\,\alpha_{2}-\sqrt{3}\ \sqrt{76\,\alpha_{1}^{2}-116\,\alpha_{1}\,\alpha_{2}+83\,\alpha_{2}^{2}})\,p^{4}}{\alpha_{1}\,(\alpha_{1}-\alpha_{2})} > 0$
Polarisations:	1



Quartic pole

Pole residue:	$0 < \frac{(6\,\alpha_{1}+3\,\alpha_{2}+\sqrt{3}\ \sqrt{76\,\alpha_{1}^{2}-116\,\alpha_{1}\,\alpha_{2}+83\,\alpha_{2}^{2}})\,p^{4}}{\alpha_{1}\,(\alpha_{1}-\alpha_{2})}\ \&\&\ \frac{(6\,\alpha_{1}+3\,\alpha_{2}+\sqrt{3}\ \sqrt{76\,\alpha_{1}^{2}-116\,\alpha_{1}\,\alpha_{2}+83\,\alpha_{2}^{2}})\,p^{4}}{\alpha_{1}\,(\alpha_{1}-\alpha_{2})} > 0$
Polarisations:	1



Hexic pole

Pole residue:	$0 < \frac{(2\,\alpha_{1}+\alpha_{2})\,p^{6}}{\alpha_{1}\,(\alpha_{1}-\alpha_{2})}\ \&\&\ \frac{(2\,\alpha_{1}+\alpha_{2})\,p^{6}}{\alpha_{1}\,(\alpha_{1}-\alpha_{2})} > 0$
Polarisations:	1

Gauge symmetries

(Not yet implemented in PSALTer)

Unitarity conditions

(Unitarity is demonstrably impossible)

Validity assumptions

(Not yet implemented in PSALTer)