PSALTer results panel

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

Wave operator

$$\begin{array}{c|cc} & {}^{0^+}h^{\perp} & {}^{0^+}h^{\parallel} \\ \hline {}^{0^+}h^{\perp}\dagger & (-\alpha_{1} + \alpha_{2})\,k^2 & 0 \\ {}^{0^+}h^{\parallel}\dagger & 0 & \alpha_{1}\,k^2 \end{array}$$

$$\begin{array}{c|c} & {}^{1^-}h^{\perp}{}_{\alpha} \\ \hline {}^{1^-}h^{\perp}\dagger^{\alpha} & \frac{1}{2}\,(-\alpha_{1} + \alpha_{2})\,k^2 \end{array}$$

$$\begin{array}{c|c} & {}^{2^+}h^{\parallel}{}_{\alpha\beta} \\ \hline {}^{2^+}h^{\parallel}\dagger^{\alpha\beta} & -\frac{\alpha_{1}\,k^2}{2} \end{array}$$

Saturated propagator

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

$$\begin{array}{c|c} & {}^{1^-}\mathcal{T}^{\perp}{}_{\alpha} \\ \hline {}^{1^-}\mathcal{T}^{\perp}\dagger^{\alpha} & -\frac{2}{(\alpha_{1}-\alpha_{2})\,k^2} \end{array}$$

$$\begin{array}{c|c} & {}^{2^+}\mathcal{T}^{\parallel}{}_{\alpha\beta} \\ \hline {}^{2^+}\mathcal{T}^{\parallel}\dagger^{\alpha\beta} & -\frac{2}{\alpha_{1}\,k^2} \end{array}$$

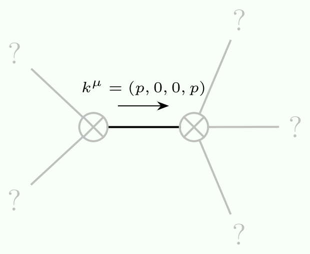
Source constraints

(No source constraints)

Massive spectrum

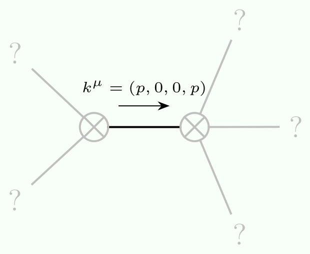
(No particles)

Massless spectrum



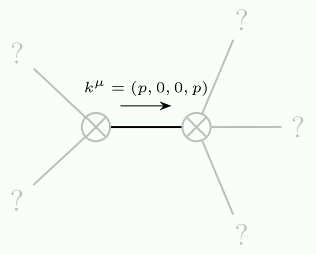
Massless particle

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



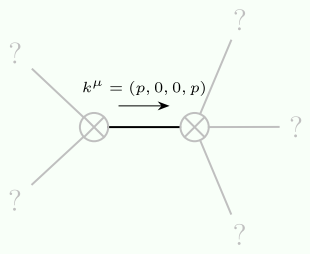
Massless particle

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



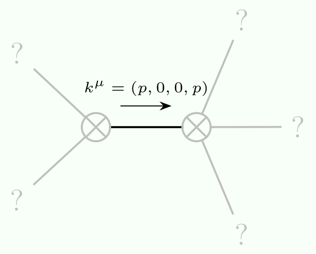
Massless particle

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



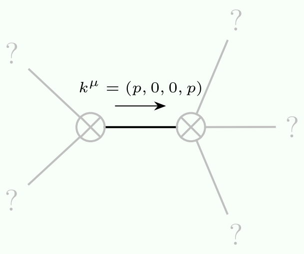
Massless particle

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



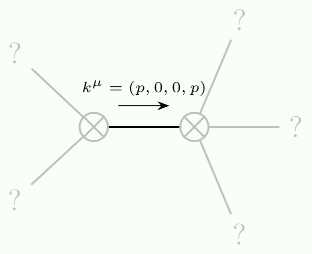
Massless particle

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



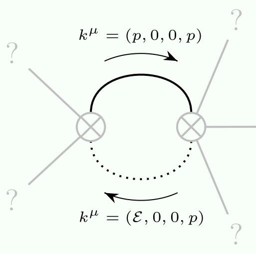
Massless particle

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



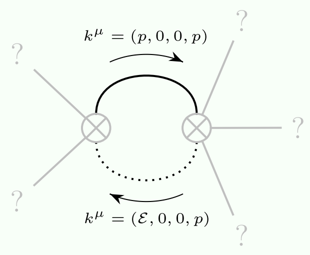
Massless particle

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



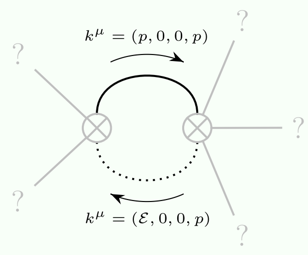
Quartic pole

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



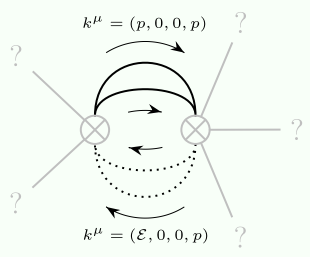
Quartic pole

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



Quartic pole

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

Unitarity conditions

(Demonstrably impossible)