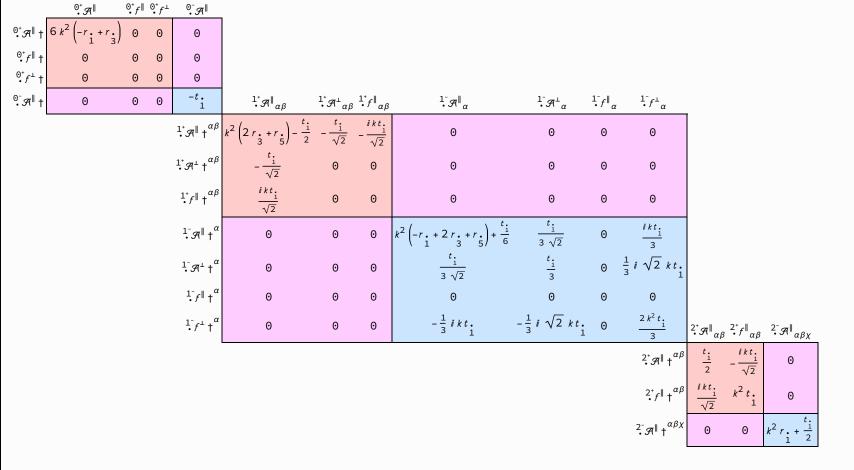
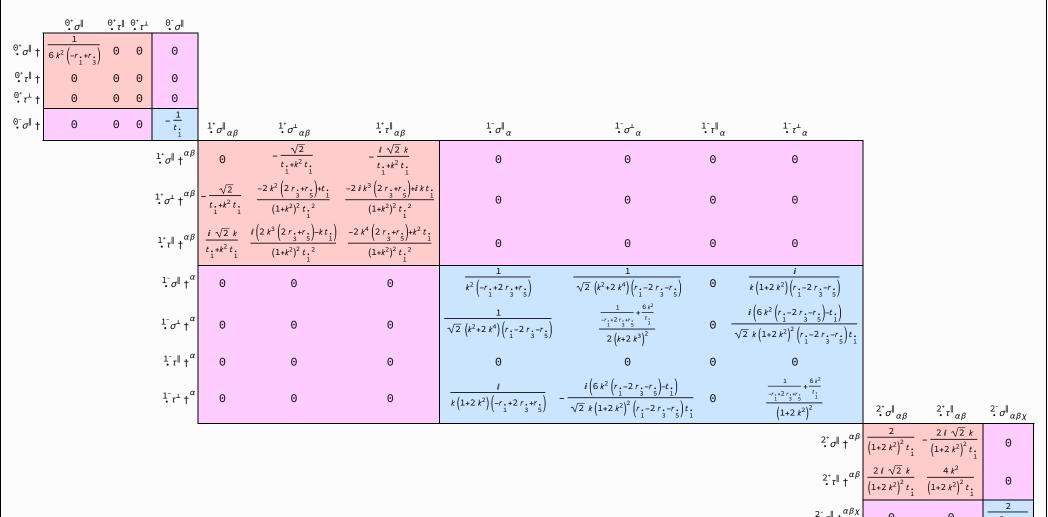
$S = \iiint \left(\mathcal{A}^{\alpha\beta\chi} \ \sigma_{\alpha\beta\chi} + f^{\alpha\beta} \ \tau \left(\Delta + \mathcal{K} \right)_{\alpha\beta} - 2 \, r_{3} \, \left(\partial_{\beta} \mathcal{A}_{, \, \theta}^{\ \theta} \, \partial^{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} + \partial_{i} \mathcal{A}_{, \, \theta}^{\ \theta} \, \partial^{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} + \partial_{\alpha} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial^{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial^{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{\theta} \mathcal{A}_{, \, \beta}^{\ \theta} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{i} \mathcal{A}_{, \, \beta}^{\ \alpha} - 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} + 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} + 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} + 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} + 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} + 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} + 2 \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} \, \partial_{i} \mathcal{A}_{, \, \alpha}^{\alpha\beta} + 2 \, \partial_{i} \mathcal{A}_{, \,$

<u>Wave</u> <u>operator</u>

PSALTer results panel



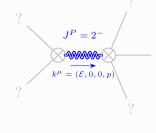
Saturated propagator



Source constraints

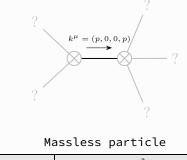
Spin-parity form	Covariant form	Multiplicities
0 ⁺ τ [⊥] == 0	$\partial_{\beta}\partial_{\alpha}\tau \left(\Delta+\mathcal{K}\right)^{\alpha\beta} == 0$	1
⁰⁺ τ == Θ	$\partial_{\beta}\partial_{\alpha}\tau \left(\Delta + \mathcal{K}\right)^{\alpha\beta} == \partial_{\beta}\partial^{\beta}\tau \left(\Delta + \mathcal{K}\right)^{\alpha}_{\alpha}$	1
$2 i k \int_{\bullet}^{1^{-}} \sigma^{\perp} + \int_{\bullet}^{1^{-}} \tau^{\perp} = 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}_{\tau}\left(\Delta+\mathcal{K}\right)^{\beta\chi} = \partial_{\chi}\partial^{\chi}\partial_{\beta\tau}\left(\Delta+\mathcal{K}\right)^{\alpha\beta} + 2\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial_{\beta}\sigma^{\beta\alpha\chi}$	3
1- ₇ ^α == 0	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\beta\alpha}$	3
$i k \cdot 1^{+} \sigma^{\perp}^{\alpha\beta} + \cdot 1^{+} \tau^{\parallel}^{\alpha\beta} = 0$	$\partial_{\chi}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\beta\chi} + \partial_{\chi}\partial^{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\chi\alpha} + \partial_{\chi}\partial^{\chi}\tau\left(\Delta+\mathcal{K}\right)^{\alpha\beta} + 2\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta} + 2\partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\chi\alpha\beta} = \partial_{\chi}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\chi\beta} + \partial_{\chi}\partial^{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\alpha\chi} + \partial_{\chi}\partial^{\chi}\tau\left(\Delta+\mathcal{K}\right)^{\beta\alpha} + 2\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta}$	3
$-2 i k \frac{2^{+}}{6} \sigma^{\parallel} + \frac{2^{+}}{6} \tau^{\parallel} \alpha^{\beta} = 0$	$0 - i \left(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^{\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^{\beta}_{\chi} \partial^{\alpha}_{\tau} (\Delta + \mathcal{K})^{\chi \beta} - 3 \partial_{\delta} \partial^{\delta} \partial^{\beta}_{\chi} \partial^{\alpha}_{\tau} (\Delta + \mathcal{K})^{\chi \beta} - 3 \partial_{\delta} \partial^{\delta} \partial^{\beta}_{\chi} \partial^{\alpha}_{\tau} (\Delta + \mathcal{K})^{\chi \beta} - 3 \partial_{\delta} \partial^{\delta} \partial^{\beta}_{\chi} \partial^{\alpha}_{\tau} (\Delta + \mathcal{K})^{\chi \beta} - 3 \partial_{\delta} \partial^{\delta} \partial^{\beta}_{\chi} \partial^{\alpha}_{\tau} (\Delta + \mathcal{K})^{\chi \beta} - 3 \partial_{\delta} \partial^{\delta} \partial^{\beta}_{\chi} \partial^{\alpha}_{\tau} (\Delta + \mathcal{K})^{\chi \beta} - 3 \partial_{\delta} \partial^{\delta} \partial^{\alpha}_{\chi} \partial^{\alpha}_{\tau} (\Delta + \mathcal{K})^{\chi \beta} - 3 \partial_{\delta} \partial^{\delta}_{\chi} \partial^{\alpha}_{\tau} \partial^{\alpha}_{\chi} $	5
	$3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\beta} \tau (\Delta + \mathcal{K})^{\chi \alpha} + 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} + 4 i k^{\chi} \partial_{\epsilon} \partial_{\chi} \partial^{\beta} \partial^{\alpha} \sigma^{\delta}_{ $	
	$6 i k^{\chi} \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial_{\chi} \sigma^{\alpha\beta\delta} + 6 i k^{\chi} \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial_{\chi} \sigma^{\beta\alpha\delta} + 2 \eta^{\alpha\beta} \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial_{\chi\tau} (\Delta + \mathcal{K})^{\chi\delta} - 2 \eta^{\alpha\beta} \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\delta}_{\tau} (\Delta + \mathcal{K})^{\chi} - 4 i \eta^{\alpha\beta} k^{\chi} \partial_{\phi} \partial^{\phi} \partial_{\epsilon} \partial_{\chi} \sigma^{\delta}_{\delta} \partial^{\epsilon} \partial_{\delta} \partial^{\chi\tau} (\Delta + \mathcal{K})^{\chi\delta} - 2 \eta^{\alpha\beta} \partial_{\epsilon} \partial_{\delta} \partial^{\delta}_{\tau} (\Delta + \mathcal{K})^{\chi} \partial^{\phi} \partial^{\phi} \partial_{\epsilon} \partial_{\chi} \sigma^{\delta}_{\delta} \partial^{\phi} \partial^$	
Total expected gauge generators:		16

<u>Massive</u> <u>spectrum</u>



Massive particle Pole residue: $-\frac{1}{r_i} > 0$ Square mass: $-\frac{t}{2r_i} > 0$ Spin: 2 Parity: Odd

<u>Massless</u> <u>spectrum</u>



Pole residue: $\frac{7}{r_1 - 2r_3 r_5} + \frac{-2t_1 p^2 + 4(r_1 - 2r_3 r_5) p^4}{t_1^2} > 0$ Polarisations: 2

Gauge symmetries

(Not yet implemented in PSALTer)

<u>Unitarity</u> <u>conditions</u>

 $r. \in \mathbb{R} \&\&r. < -2r. \&\&2r. +r. < r. < 0 \&\&t. > 0$ 3
3
5
1

Validity assumptions

(Not yet implemented in PSALTer)