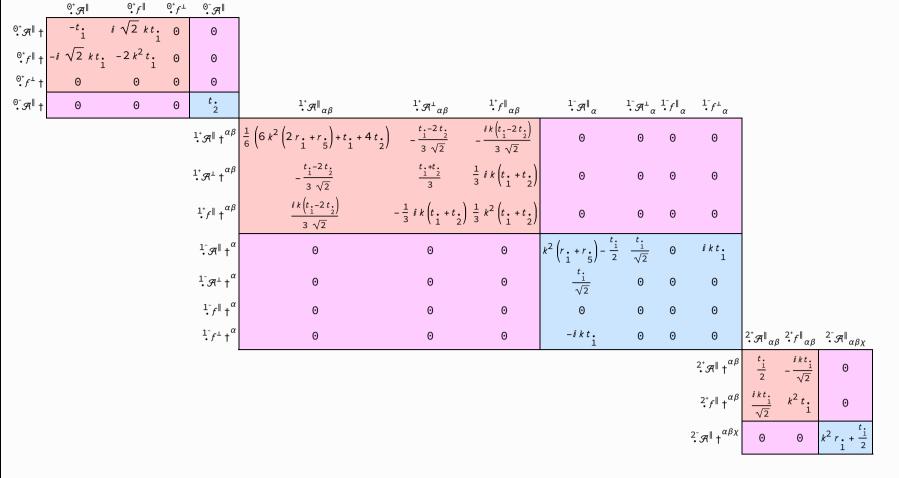
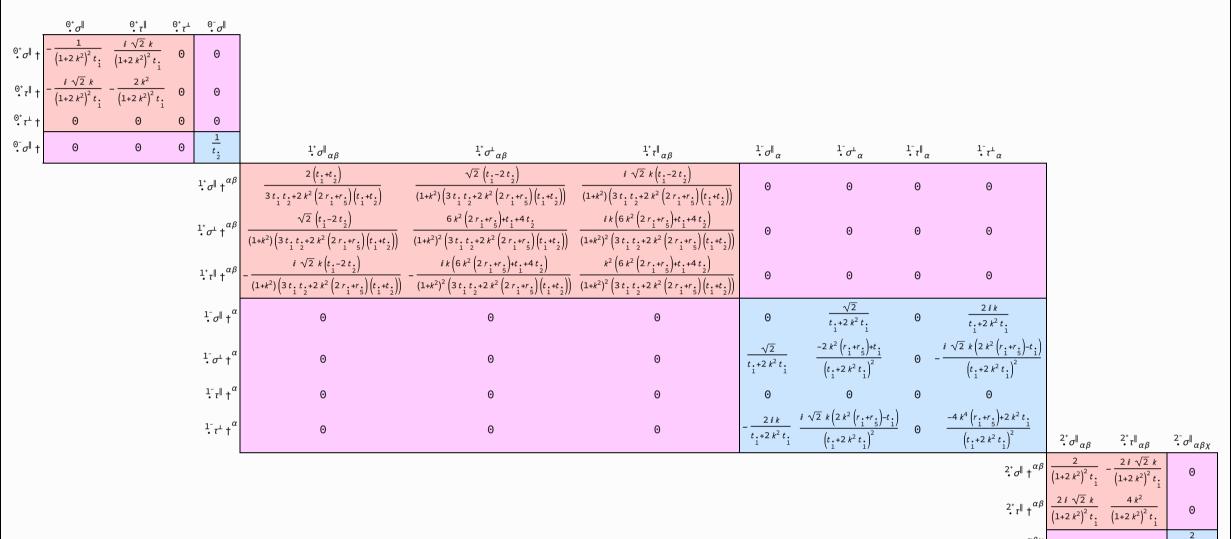
# $S = \iiint \left(\frac{1}{6} \left(6t_{1} \mathcal{A}^{\alpha_{1}} _{\alpha} \mathcal{A}^{\theta}_{,\theta} + 6 \mathcal{A}^{\alpha\beta\chi} \sigma_{\alpha\beta\chi} + 6 f^{\alpha\beta} \tau_{(\Delta+\mathcal{K})_{\alpha\beta}} - 12t_{1} \mathcal{A}^{\theta}_{\alpha} \partial_{\beta}f^{\alpha_{1}} + 12t_{1} \mathcal{A}^{\theta}_{,\theta} \partial_{\beta}f^{\alpha_{2}} - 6t_{1} \partial_{\beta}f^{\theta}_{,\theta} \partial_{\beta}f^{\alpha_{2}} - 6t_{1} \partial_{\beta}f^{\alpha_{2}} \partial_{\theta}f^{\alpha_{1}} + 12t_{1} \partial_{\beta}f^{\alpha_{2}} \partial_{\theta}f^{\alpha_{1}} + 4r_{1} \partial_{\beta}\mathcal{A}_{\alpha_{1}\theta} \partial_{\beta}\mathcal{A}^{\alpha\beta_{1}} + 4r_{1} \partial_{\beta}\mathcal{A}_{\alpha\beta_{1}} \partial_{\beta}\mathcal{A}^{\alpha\beta_{1}} + 4r_{1} \partial_{\theta}\mathcal{A}_{\alpha\beta_{1}} \partial_{\beta}\mathcal{A}^{\alpha\beta_{1}} \partial_{\beta}\mathcal{$

#### Wave operator



## Saturated propagator

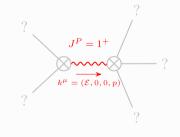


## Source constraints

Spin-parity form	Covariant form	Multiplicities
${\stackrel{\Theta^+}{\scriptstyle \bullet}} \tau^{\perp} == \Theta$	$\partial_{\beta}\partial_{\alpha\tau}\left(\Delta+\mathcal{K}\right)^{\alpha\beta}=0$	1
$-2 i k^{0^+} \sigma^{\parallel} + 0^+ \tau^{\parallel} == 0$	$\partial_{\beta}\partial_{\alpha}\tau \left(\Delta + \mathcal{K}\right)^{\alpha\beta} = \partial_{\beta}\partial^{\beta}\tau \left(\Delta + \mathcal{K}\right)^{\alpha}_{\alpha} + 2 \partial_{\chi}\partial^{\chi}\partial_{\beta}\sigma^{\alpha}_{\alpha}^{\beta}$	1
$2 i k \cdot \frac{1}{\cdot} \sigma^{\perp}^{\alpha} + \cdot \frac{1}{\cdot} \tau^{\perp}^{\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}_{\tau}\left(\Delta+\mathcal{K}\right)^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta\tau}\left(\Delta+\mathcal{K}\right)^{\alpha\beta} + 2\ \partial_{\delta}\partial^{\delta}\partial_{\chi}\partial_{\beta}\sigma^{\beta\alpha\chi}$	3
1- <sub>\tau</sub>   \alpha == 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
$i k \cdot 1^+ \sigma^{\perp}^{\alpha\beta} + \cdot 1^+ \tau^{\parallel}^{\alpha\beta} == 0$	$\partial_{\chi}\partial^{\alpha}\tau \left(\Delta+\mathcal{K}\right)^{\beta\chi} + \partial_{\chi}\partial^{\beta}\tau \left(\Delta+\mathcal{K}\right)^{\chi\alpha} + \partial_{\chi}\partial^{\chi}\tau \left(\Delta+\mathcal{K}\right)^{\alpha\beta} + 2 \partial_{\sigma}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta} + 2 \partial_{\sigma}\partial^{\delta}\partial_{\chi}\sigma^{\chi\alpha\beta} = \partial_{\chi}\partial^{\alpha}\tau \left(\Delta+\mathcal{K}\right)^{\chi\beta} + \partial_{\chi}\partial^{\beta}\tau \left(\Delta+\mathcal{K}\right)^{\alpha\chi} + \partial_{\chi}\partial^{\chi}\tau \left(\Delta+\mathcal{K}\right)^{\alpha\beta} + 2 \partial_{\sigma}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta}$	3
$-2ik^{2} \cdot \sigma^{\parallel \alpha \beta} + 2^{+} \cdot \tau^{\parallel \alpha \beta} = 0 -i\left(4\partial_{\delta}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\tau \left(\Delta + \mathcal{K}\right)^{\chi \delta} + 2\partial_{\delta}\partial^{\delta}\partial^{\beta}\partial^{\alpha}\tau \left(\Delta + \mathcal{K}\right)^{\chi} - 3\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau \left(\Delta + \mathcal{K}\right)^{\beta \chi} - 3\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau \left(\Delta + \mathcal{K}\right)^{\chi \beta} - 3\partial_{\delta}\partial^{\alpha}\partial_{\chi}\partial$		
	$3\ \partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}{}_{\tau}\ (\Delta+\mathcal{K})^{\alpha\chi} - 3\ \partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}{}_{\tau}\ (\Delta+\mathcal{K})^{\chi\alpha} + 3\ \partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}{}_{\tau}\ (\Delta+\mathcal{K})^{\alpha\beta} + 3\ \partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}{}_{\tau}\ (\Delta+\mathcal{K})^{\beta\alpha} + 4\ \emph{i}\ \emph{k}^{\chi}\ \partial_{\epsilon}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\sigma^{\delta}_{\ \ \delta}^{\ \ \epsilon} - 6\ \emph{i}\ \emph{k}^{\chi}\ \partial_{\epsilon}\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\delta\beta}\epsilon - 6\ \emph{k}\ \emph{k}^{\chi}\ \partial_{\epsilon}\partial_{\lambda}\partial^{\alpha}\sigma^{\delta\beta}\epsilon - 6\ \emph{k}\ \emph{k}^{\chi}\ \partial_{\epsilon}\partial_{\lambda}\partial^{\alpha}\sigma^{\delta\beta}\epsilon - 6\ \emph{k}\ \emph{k}\ \emph{k}^{\chi}\ \partial_{\epsilon}\partial_{\lambda}\partial^{\alpha}\sigma^{\delta\beta}\epsilon - 6\ \emph{k}\ \emph{k}\ \emph{k}^{\chi}\ \partial_{\epsilon}\partial_{\lambda}\partial^{\alpha}\sigma^{\delta\beta}\epsilon - 6\ \emph{k}\ \emph{k}\ \emph{k}\ \emph{k}\ \emph{k}\ \emph{k}\ \partial_{\epsilon}\partial_{\lambda}\partial^{\alpha}\sigma^{\delta\beta}\epsilon - 6\ \emph{k}\ \emph{k}\ \emph{k}\ \emph{k}\ \partial_{\epsilon}\partial_{\lambda}\partial^{\alpha}\sigma^{\delta\beta}\epsilon - 6\ \emph{k}\ \emph$	
	$ 6 \ i \ k^{X} \ \partial_{\epsilon} \partial_{\delta} \partial_{\chi} \partial^{\beta} \sigma^{\delta \alpha \epsilon} + 6 \ i \ k^{X} \ \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial_{\chi} \sigma^{\alpha \beta \delta} + 6 \ i \ k^{X} \ \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 \left( \Delta + \mathcal{K} \right)^{\chi \delta} - 2 \ \eta^{\alpha \beta} \ \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\delta} \tau \left( \Delta + \mathcal{K} \right)^{\chi} - 4 \ i \ \eta^{\alpha \beta} \ k^{X} \ \partial_{\phi} \partial^{\phi} \partial_{\epsilon} \partial_{\chi} \sigma^{\delta} \int_{\delta} e^{i \delta} \partial_{\alpha} \partial_{\alpha} \sigma^{\delta} \partial_{\alpha} \partial_{\alpha} \sigma^{\delta} \partial_{\alpha} \partial_{\alpha} \sigma^{\delta} \partial_{\alpha} \partial_{\alpha}$	
Total expected gauge generators:		16

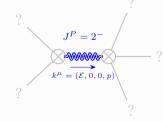
 $2 k^2 r_1 + t_1$ 

#### Massive spectrum



## Massive particle $-3t.t.(t.+t.)+6r.(t.^{2}+2t.^{2})+3r.(t.^{2}+2t.^{2})$

	Pole residue:	$\frac{112(112)(12)(112)(112)(112)(112)(112)(1$
Square mass:		$-\frac{3t.t.}{\frac{12}{2(2r.+r.)(t.+t.)}} > 0$
	Spin:	1
	Parity:	Even
		0



Massive particle		
Pole residue:	$-\frac{1}{r_{i}} > 0$	
Square mass:	$-\frac{\frac{t_{\cdot}}{1}}{2r_{\cdot}} > 0$	
Spin:	2	
Parity:	Odd	

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

(There are no massless particles)

# Gauge symmetries

(Not yet implemented in PSALTer)

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

r. < 0 && t. < 0 && t. > -t. && r. > -2 r.

## <u>Validity</u> <u>assumptions</u>

(Not yet implemented in PSALTer)