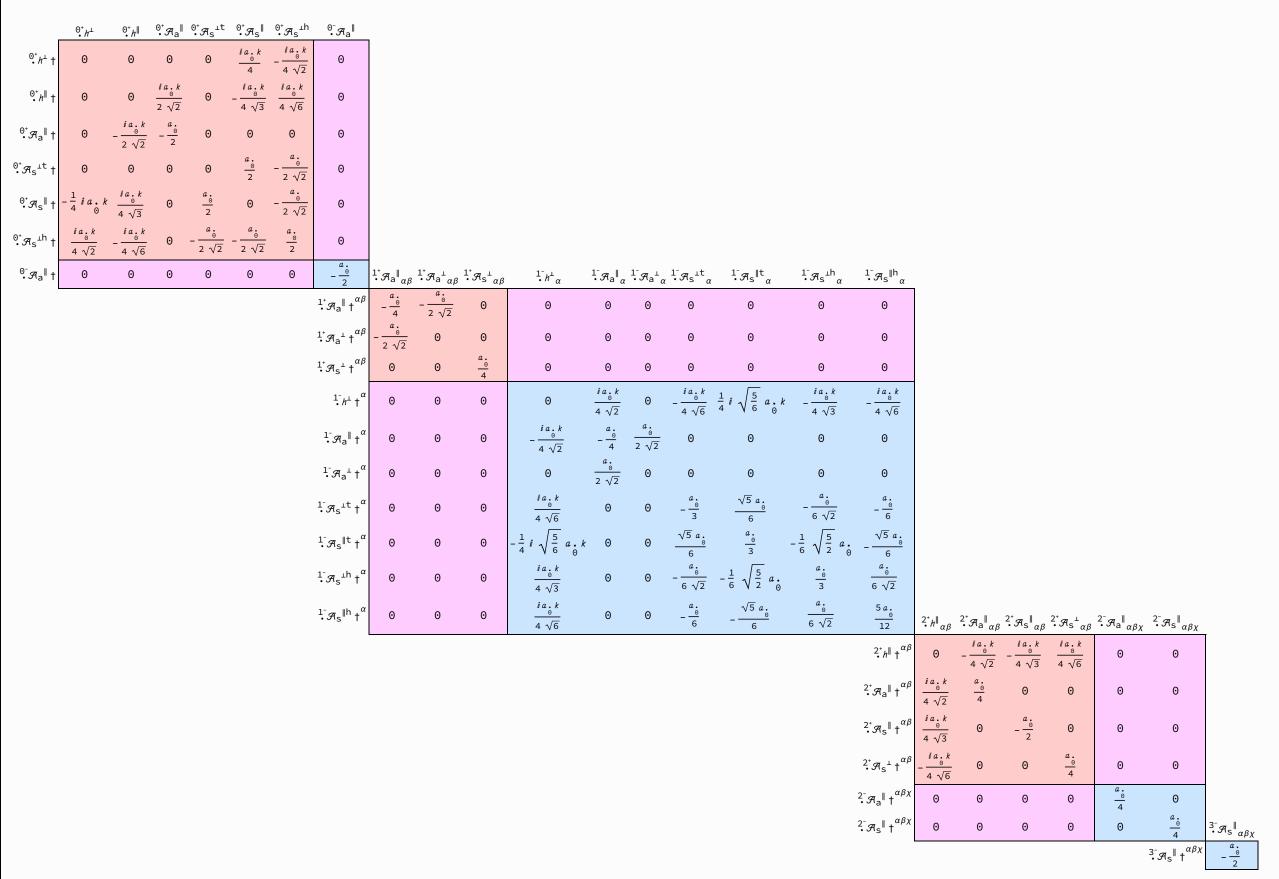
## PSALTer results panel

 $S = \iiint \left( \frac{1}{4} \left( 2 \, a_{\cdot \cdot} \, \mathcal{A}_{\alpha}^{\alpha \beta} \, \mathcal{A}_{\beta \chi}^{\chi} + \mathcal{A}^{\alpha \beta \chi} \left( -2 \, a_{\cdot \cdot} \, \mathcal{A}_{\beta \chi \alpha} + 4 \, \mathcal{W}_{\alpha \beta \chi} \right) + 4 \, \mathcal{T}^{\alpha \beta} \, h_{\alpha \beta} - a_{\cdot \cdot} \, h_{\chi}^{\chi} \, \partial_{\beta} \mathcal{A}_{\alpha}^{\alpha \beta} + a_{\cdot \cdot} \, h_{\chi}^{\chi} \, \partial_{\beta} \mathcal{A}_{\alpha}^{\alpha \beta} - 2 \, a_{\cdot \cdot} \, h_{\alpha \chi} \, \partial_{\beta} \mathcal{A}^{\alpha \beta \chi} + 2 \, a_{\cdot \cdot} \, h_{\beta \chi} \, \partial^{\chi} \mathcal{A}_{\alpha}^{\alpha \beta} \right) \left[ t \,, \, \chi \,, \, y \,, \, z \right] \, dz \, dy \, dx \, dt$ 

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



#### <u>Saturated</u> <u>propagator</u>

 $a \cdot (16+3 k^2)^2$ 

4 √3

 $16 a_{0} + 3 a_{0} k^{2}$ 

 ${}^{0^{+}}\mathcal{W}_{a}{}^{\parallel}$ 

2 i √6 k

 ${}^{0^{+}}_{\cdot}W_{s}^{\perp t}$ 

 $\frac{1}{a \cdot (16+3 k^2)^2}$ 

72 i k

0⁺<sub>Ws</sub>∥

8 i k (19+3 k<sup>2</sup>)

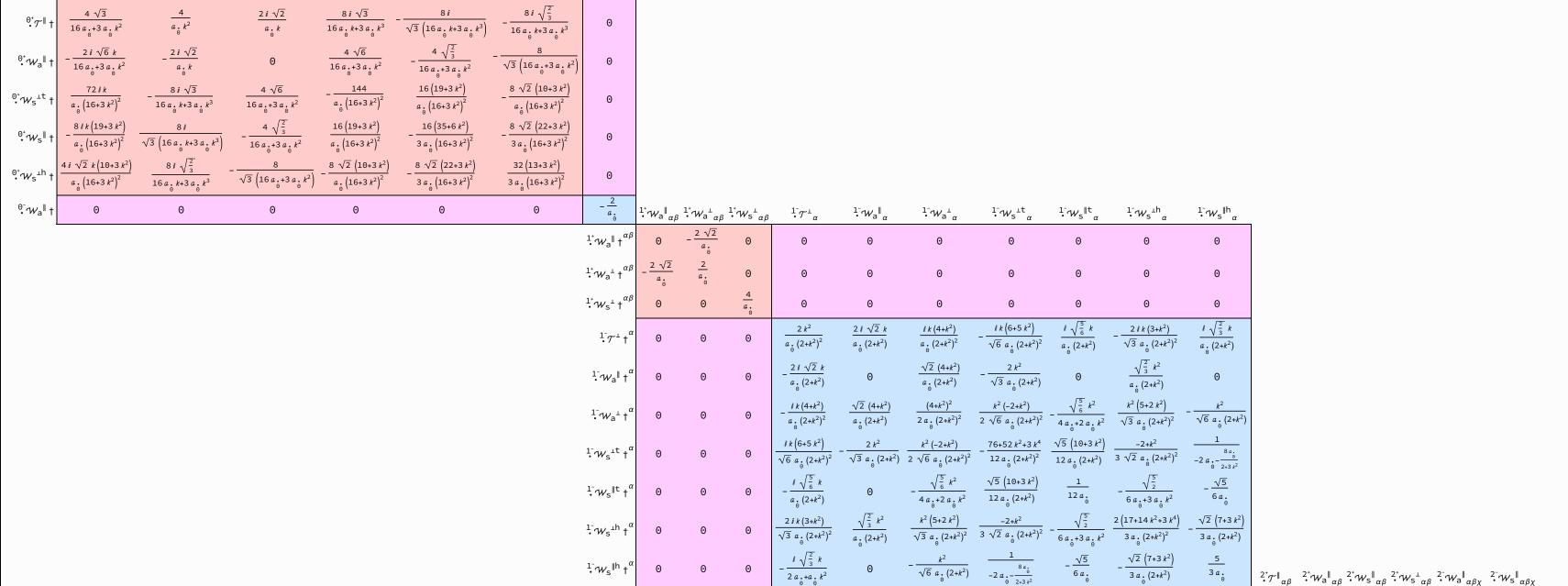
 $a \cdot (16+3 k^2)^2$ 

<sup>0⁺</sup>Ws<sup>⊥h</sup>

 $4i \sqrt{2} k (10+3 k^2)$ 

 $a_{0} (16+3 k^{2})^{2}$ 

 ${}^{0}$  $W_{a}$  $\|$ 



3 a. (2+k)							
$\frac{5}{3 a}$	$^{2^{+}}\mathcal{T}^{\parallel}_{\alpha\beta}$	$^{2^{+}}_{\cdot}W_{a}^{\parallel}_{\alpha\beta}$	$^{2^{+}}W_{S}^{\parallel}{}_{\alpha\beta}$	$^{2^{+}}W_{s}^{\perp}{}_{\alpha\beta}$	$^{2}$ $w_{a}^{\parallel}_{\alpha\beta\chi}$	$^{2}$ $w_{s}^{\parallel}_{\alpha\beta\chi}$	
$^{2^{+}}\mathcal{T}^{\parallel}$ † $^{\alpha\beta}$	$-\frac{8}{a_{\bullet}k^2}$	$-\frac{4i\sqrt{2}}{a.k\atop 0}$	$\frac{4i}{\sqrt{3} a_{0}k}$	$\frac{4 i \sqrt{\frac{2}{3}}}{a \cdot k}$	0	0	
${}^{2^+}W_a{}^{\parallel} \dagger^{\alpha\beta}$	$\frac{4i\sqrt{2}}{a.k}$	0	$\frac{2\sqrt{\frac{2}{3}}}{a_{\bullet}}$	$\frac{4}{\sqrt{3}}a_{\stackrel{\bullet}{0}}$	0	Θ	
${}^{2^{+}}W_{s}{}^{\parallel}$ † ${}^{\alpha\beta}$	$-\frac{4i}{\sqrt{3}}a_{0k}$	$\frac{2\sqrt{\frac{2}{3}}}{a_{\bullet}}$	$-\frac{8}{3 a_{\bullet}}$	$-\frac{2\sqrt{2}}{3a_{0}}$	0	Θ	
$ \begin{array}{ccc} 2^{+}W_{a} & \uparrow^{\alpha\beta} \\ 2^{+}W_{s} & \uparrow^{\alpha\beta} \end{array} $ $ \begin{array}{ccc} 2^{+}W_{s} & \uparrow^{\alpha\beta} \end{array} $	$-\frac{4 i \sqrt{\frac{2}{3}}}{a \cdot k}$	$\frac{4}{\sqrt{3} \ a_{\stackrel{\circ}{0}}}$	$-\frac{2\sqrt{2}}{3a_{\stackrel{\bullet}{0}}}$	$\frac{8}{3 a_{\bullet}}$	0	Θ	
$^{2^{-}}W_{a}^{\parallel} + ^{\alpha\beta\chi}$ $^{2^{-}}W_{s}^{\parallel} + ^{\alpha\beta\chi}$	0	0	0	0	$\frac{4}{a}$	0	
$^{2}$ $\mathcal{W}_{s}^{\parallel}$ $\dagger^{\alpha\beta\chi}$	0	Θ	Θ	0	0	$\frac{4}{a}$	3-W
						$^{3}W_{s}$ $^{\dagger}$ $^{\alpha\beta\chi}$	-
						•	

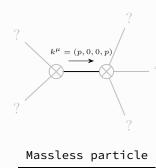
## Source constraints

Spin-parity form	Covariant form	Multiplicities		
$k \stackrel{0^+}{\cdot} \mathcal{W}_S^{\parallel} + 2 k \stackrel{0^+}{\cdot} \mathcal{W}_S^{\perp h} - 6 i \stackrel{0^+}{\cdot} \mathcal{T}^{\perp} == 0$	$2 \partial_{\beta} \partial_{\alpha} \mathcal{T}^{\alpha\beta} + \partial_{\chi} \partial^{\chi} \partial_{\alpha} \mathcal{W}^{\alpha\beta}_{ \beta} = \partial_{\chi} \partial_{\beta} \partial_{\alpha} \mathcal{W}^{\alpha\beta\chi}$	1		
$k \stackrel{0^+}{\cdot} W_S^{\perp t} + 2 i \stackrel{0^+}{\cdot} \mathcal{T}^{\perp} == 0$	$2 \partial_{\beta} \partial_{\alpha} \mathcal{T}^{\alpha\beta} = \partial_{\chi} \partial_{\beta} \partial_{\alpha} w^{\alpha\beta\chi}$	1		
$6 k \frac{1}{1} w_{a}^{\perp \alpha} + 2 k \frac{1}{1} w_{s}^{\parallel h^{\alpha}} + k \frac{1}{1} w_{s}^{\parallel t^{\alpha}} + 3 k \frac{1}{1} w_{s}^{\perp t^{\alpha}} + 12 i \frac{1}{1} \tau^{\perp \alpha} = 0$	$ \left  4  \partial_{\chi} \partial_{\beta} \partial^{\alpha} \mathcal{T}^{\beta \chi} + 2  \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial_{\beta} w^{\beta \alpha \chi} + \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\chi} w^{\alpha \beta}_{ \beta} = 4  \partial_{\chi} \partial^{\chi} \partial_{\beta} \mathcal{T}^{\alpha \beta} + 2  \partial_{\delta} \partial_{\chi} \partial_{\beta} \partial^{\alpha} w^{\beta \chi \delta} + \partial_{\delta} \partial^{\delta} \partial_{\beta} \partial^{\alpha} w^{\beta \chi}_{ \chi} \right  $	3		
$k : W_s^{\perp h^{\alpha}} - 6i : T^{\perp \alpha} == k \left( 3 : W_a^{\perp \alpha} + : W_s^{\perp t^{\alpha}} \right)$	$2 \partial_{\chi} \partial_{\beta} \partial^{\alpha} \mathcal{T}^{\beta \chi} + \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial_{\beta} w^{\beta \alpha \chi} = 2 \partial_{\chi} \partial^{\chi} \partial_{\beta} \mathcal{T}^{\alpha \beta} + \partial_{\delta} \partial_{\chi} \partial_{\beta} \partial^{\alpha} w^{\beta \chi \delta}$	3		
Total expected gauge generators:				

## Massive spectrum

(There are no massive particles)

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



# Massless particle Pole residue: $-\frac{p^2}{a_0^2} > 0$ Polarisations: 2

#### <u>Gauge symmetries</u>

(Not yet implemented in PSALTer)

## <u>Unitarity</u> conditions

<u>un 1</u>

## Validity assumptions

(Not yet implemented in PSALTer)