PSALTer results panel $S = \iiint \left(\mathcal{A}^{\alpha\beta\chi} \ \sigma_{\alpha\beta\chi} + f^{\alpha\beta} \ \tau (\Delta + \mathcal{K})_{\alpha\beta} + \beta_{1} \left(4 \ \partial_{\beta}\mathcal{R}^{\alpha\beta} \ _{\alpha} - 4 \ \mathcal{R}_{\alpha \ \chi}^{\ \chi} \ \partial_{\beta}f^{\alpha\beta} + 4 \ \mathcal{R}_{\beta \ \chi}^{\ \chi} \ \partial^{\beta}f^{\alpha} \ _{\alpha} - 4 \right) \right)$

$$2 \partial_{\beta} f^{X}_{\chi} \partial^{\beta} f^{\alpha}_{\alpha} - 4 f^{\alpha\beta} \left(\partial_{\beta} \mathcal{R}_{\alpha}^{\chi}_{\chi} - \partial_{\chi} \mathcal{R}_{\alpha}^{\chi}_{\beta} \right) - 4 f^{\alpha}_{\alpha} \partial_{\chi} \mathcal{R}^{\beta X}_{\beta} - 2 \partial_{\beta} f^{\alpha\beta} \partial_{\chi} f^{\chi}_{\alpha} + 4 \partial^{\beta} f^{\alpha}_{\alpha} \partial_{\chi} f^{\chi}_{\beta} \partial_{\chi} f^{\chi}_{\alpha} \partial_{\chi} f^{\chi}_{$$

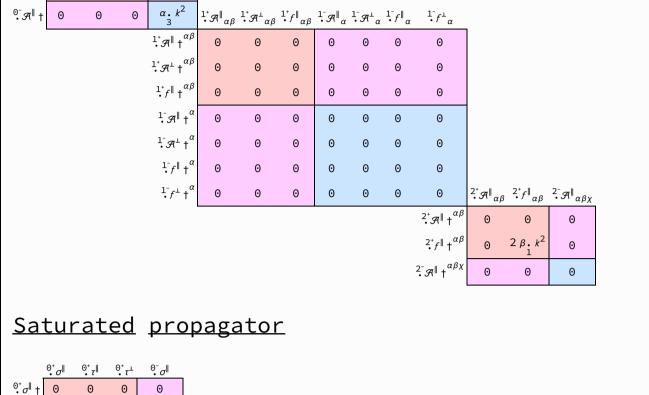
 0^+f^{\parallel} †

 $\begin{array}{c|c}
0^+ \tau^{\parallel} + & 0 \\
0^+ \tau^{\perp} + & 0
\end{array}$

0

^{⊙⁻}σ[∥] †

 $0 -4 \beta_1 k^2 = 0$



 $\begin{vmatrix} 1^{+}\sigma \parallel_{\alpha\beta} & 1^{+}\sigma^{\perp}_{\alpha\beta} & 1^{+}\tau \parallel_{\alpha\beta} & 1^{-}\sigma \parallel_{\alpha} & 1^{-}\sigma^{\perp}_{\alpha} & 1^{-}\tau \parallel_{\alpha} & 1^{-}\tau^{\perp}_{\alpha} \end{vmatrix}$

0

0

0

0

0

0

0

0

 $\frac{2^+}{\sigma^{\parallel}} \sigma^{\parallel} \uparrow^{\alpha\beta}$

 $2^{+}_{\bullet}\tau^{\parallel} \uparrow^{\alpha\beta}$

 $^{2^{-}}\sigma^{\parallel} \uparrow^{\alpha\beta\chi}$

 $\begin{vmatrix} 2^+ \sigma \parallel_{\alpha\beta} & 2^+ \tau \parallel_{\alpha\beta} & 2^- \sigma \parallel_{\alpha\beta\chi} \end{vmatrix}$

 $\frac{1}{2\beta_1}k^2$

0

0

0

0

0

0

0

0

$1 \cdot \tau^{\perp} + \alpha = 0$ 0

Source constraints

 $\alpha_{\cdot} k^2$

 $\begin{array}{ccc}
\stackrel{1^+}{\cdot} \sigma^{\parallel} + & \alpha^{\beta} \\
\stackrel{1^+}{\cdot} \sigma^{\perp} + & \alpha^{\beta}
\end{array}$

 $\mathbf{1}^{+}_{\bullet} \tau^{\parallel} + \alpha^{\beta}$

 ${\stackrel{1^{-}}{\cdot}}\sigma^{\parallel} \uparrow^{\alpha}$

 1 σ^{\perp} \dagger^{α}

 $\cdot \tau^{\parallel} + \alpha$

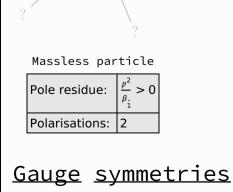
Spin-parity form	Covariant form	Multiplicities
0, τ⊥ == 0	$\partial_{\beta}\partial_{\alpha}\tau \left(\Delta + \mathcal{K}\right)^{\alpha\beta} == 0$	1
⁰⁺ σ == 0	$\partial_{\beta}\sigma^{\alpha}_{\alpha}^{\beta} = 0$	1
1- _t - t = 0	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau \left(\Delta + \mathcal{K}\right)^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau \left(\Delta + \mathcal{K}\right)^{\alpha\beta}$	3
1 _• τ 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
1-σ ¹ == 0	$\partial_{\chi}\partial_{\beta}\sigma^{\beta\alpha\chi} = 0$	3
1 _• σ α == 0	$\partial_{\delta}\partial^{\alpha}\sigma_{\chi}^{\chi}{}^{\delta} + \partial_{\delta}\partial^{\delta}\sigma_{\chi}^{\chi}{}_{\alpha} = \partial_{\delta}\partial_{\chi}\sigma_{\chi}^{\chi\alpha\delta}$	3
$1^+_{\tau}\ ^{\alpha\beta}=0$	$\partial_{\chi}\partial^{\alpha}\tau \left(\Delta + \mathcal{K}\right)^{\beta\chi} + \partial_{\chi}\partial^{\beta}\tau \left(\Delta + \mathcal{K}\right)^{\chi\alpha} + \partial_{\chi}\partial^{\chi}\tau \left(\Delta + \mathcal{K}\right)^{\alpha\beta} ==$	3
	$\partial_{\chi}\partial^{\alpha}\tau \left(\Delta + \mathcal{K}\right)^{\chi\beta} + \partial_{\chi}\partial^{\beta}\tau \left(\Delta + \mathcal{K}\right)^{\alpha\chi} + \partial_{\chi}\partial^{\chi}\tau \left(\Delta + \mathcal{K}\right)^{\beta\alpha}$	
$1^+ \sigma^{\perp}^{\alpha\beta} = 0$	$\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta} + \partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\chi\alpha\beta} = \partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta}$	3
$1^{+}_{\bullet \sigma} ^{\alpha \beta} = 0$	$\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta} + \partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\beta\alpha\chi} == \partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta} + \partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\alpha\beta\chi}$	3
$2^{-}\sigma^{\parallel}^{\alpha\beta\chi} == 0$	$ 3 \partial_{\epsilon} \partial_{\delta} \partial^{\chi} \partial^{\alpha} \sigma^{\delta \beta \epsilon} + 3 \partial_{\epsilon} \partial^{\epsilon} \partial^{\chi} \partial^{\alpha} \sigma^{\delta \beta}_{ \ \delta} + 2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\beta} \sigma^{\alpha \chi \delta} + 4 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\beta} \sigma^{\chi \alpha \delta} + $	5
	$2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\beta} \sigma^{\delta \alpha \chi} + 2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\chi} \sigma^{\beta \alpha \delta} + 4 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\chi} \sigma^{\delta \alpha \beta} + 2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\delta} \sigma^{\alpha \beta \chi} +$	
	$3 \eta^{\beta \chi} \partial_{\phi} \partial^{\phi} \partial_{\epsilon} \partial^{\alpha} \sigma^{\delta}_{\delta} + 3 \eta^{\alpha \chi} \partial_{\phi} \partial^{\phi} \partial_{\epsilon} \partial_{\delta} \sigma^{\delta \beta \epsilon} + 3 \eta^{\beta \chi} \partial_{\phi} \partial^{\phi} \partial_{\epsilon} \partial^{\epsilon} \sigma^{\delta \alpha}_{\delta} = $	
	$3 \partial_{\epsilon} \partial_{\delta} \partial^{\chi} \partial^{\beta} \sigma^{\delta \alpha \epsilon} + 3 \partial_{\epsilon} \partial^{\epsilon} \partial^{\chi} \partial^{\beta} \sigma^{\delta \alpha} + 2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\alpha} \sigma^{\beta \chi \delta} + 4 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\alpha} \sigma^{\chi \beta \delta} +$	
	$2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\alpha} \sigma^{\delta \beta \chi} + 2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\chi} \sigma^{\alpha \beta \delta} + 2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\delta} \sigma^{\beta \alpha \chi} + 4 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\delta} \sigma^{\chi \alpha \beta} +$	
	$3 \eta^{\alpha\chi} \partial_{\phi} \partial^{\phi} \partial_{\epsilon} \partial^{\beta} \sigma^{\delta}_{\delta}^{\epsilon} + 3 \eta^{\beta\chi} \partial_{\phi} \partial^{\phi} \partial_{\epsilon} \partial_{\delta} \sigma^{\delta\alpha\epsilon} + 3 \eta^{\alpha\chi} \partial_{\phi} \partial^{\phi} \partial_{\epsilon} \partial^{\epsilon} \sigma^{\delta\beta}_{\delta}$	
2 ⁺ σ ^{αβ} == 0	$3 \partial_{\delta} \partial_{\chi} \partial^{\alpha} \sigma^{\chi \beta \delta} + 3 \partial_{\delta} \partial_{\chi} \partial^{\beta} \sigma^{\chi \alpha \delta} + 2 \eta^{\alpha \beta} \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \sigma^{\chi}_{\chi}^{\delta} = $	5
	$2 \partial_{\delta} \partial^{\beta} \partial^{\alpha} \sigma_{\chi}^{\chi} {}^{\delta} + 3 \left(\partial_{\delta} \partial^{\delta} \partial_{\chi} \sigma^{\alpha \beta \chi} + \partial_{\delta} \partial^{\delta} \partial_{\chi} \sigma^{\beta \alpha \chi} \right)$	
Total expected gauge generators:		33

(There are no massive particles)

Massive spectrum

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

$k^{\mu} = (p, 0, 0, p)$



(Not yet implemented in PSALTer)

<u>Unitarity</u> conditions

β. > 0

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

(Not yet implemented in PSALTer)