

PSALTER results panel

$$S == \iiint \left(\mathcal{A}^{\alpha\beta\chi} \sigma_{\alpha\beta\chi} + f^{\alpha\beta} \tau (\Delta + \mathcal{K})_{\alpha\beta} - \frac{2}{3} r_{\dot{1}} \left(3 \partial_{\beta} \mathcal{A}_{\dot{1}\dot{\theta}}^{\theta} \partial' \mathcal{A}_{\alpha}^{\alpha\beta} - 3 \partial_{\dot{1}} \mathcal{A}_{\beta\dot{\theta}}^{\theta} \partial' \mathcal{A}_{\alpha}^{\alpha\beta} - 3 \partial_{\alpha} \mathcal{A}^{\alpha\beta\dot{1}} \partial_{\theta} \mathcal{A}_{\beta\dot{1}}^{\theta} + 6 \partial' \mathcal{A}_{\alpha}^{\alpha\beta} \partial_{\theta} \mathcal{A}_{\beta\dot{1}}^{\theta} + 3 \partial_{\alpha} \mathcal{A}^{\alpha\beta\dot{1}} \partial_{\theta} \mathcal{A}_{\dot{1}\dot{\theta}}^{\theta} - 6 \partial' \mathcal{A}_{\alpha}^{\alpha\beta} \partial_{\theta} \mathcal{A}_{\dot{1}\dot{\theta}}^{\theta} + 2 \partial_{\beta} \mathcal{A}_{\alpha\dot{\theta}} \partial^{\theta} \mathcal{A}^{\alpha\beta\dot{1}} - \partial_{\beta} \mathcal{A}_{\alpha\theta\dot{1}} \partial^{\theta} \mathcal{A}^{\alpha\beta\dot{1}} + 4 \partial_{\beta} \mathcal{A}_{\dot{1}\theta\alpha} \partial^{\theta} \mathcal{A}^{\alpha\beta\dot{1}} + \partial_{\dot{1}} \mathcal{A}_{\alpha\beta\theta} \partial^{\theta} \mathcal{A}^{\alpha\beta\dot{1}} - \partial_{\theta} \mathcal{A}_{\alpha\beta\dot{1}} \partial^{\theta} \mathcal{A}^{\alpha\beta\dot{1}} - \partial_{\theta} \mathcal{A}_{\alpha\dot{1}\beta} \partial^{\theta} \mathcal{A}^{\alpha\beta\dot{1}} \right) + \right. \\ \left. \frac{1}{2} t_{\dot{1}} \left(2 \mathcal{A}_{\alpha}^{\alpha\dot{1}} \mathcal{A}_{\dot{1}\dot{\theta}}^{\theta} - 4 \mathcal{A}_{\alpha\dot{\theta}}^{\theta} \partial_{\dot{1}} f^{\alpha\dot{1}} + 4 \mathcal{A}_{\dot{1}\dot{\theta}}^{\theta} \partial' f_{\alpha}^{\alpha} - 2 \partial_{\dot{1}} f_{\beta}^{\theta} \partial' f_{\alpha}^{\alpha} - 2 \partial_{\dot{1}} f_{\alpha}^{\alpha\dot{1}} \partial_{\theta} f_{\alpha}^{\theta} + 4 \partial' f_{\alpha}^{\alpha} \partial_{\theta} f_{\dot{1}}^{\theta} - 2 \partial_{\alpha} f_{\dot{1}\dot{\theta}} \partial^{\theta} f^{\alpha\dot{1}} - \partial_{\alpha} f_{\theta\dot{1}} \partial^{\theta} f^{\alpha\dot{1}} + \partial_{\dot{1}} f_{\alpha\theta} \partial^{\theta} f^{\alpha\dot{1}} + \partial_{\theta} f_{\alpha\dot{1}} \partial^{\theta} f^{\alpha\dot{1}} + \partial_{\theta} f_{\dot{1}\alpha} \partial^{\theta} f^{\alpha\dot{1}} + 2 \mathcal{A}_{\alpha\theta\dot{1}} \left(\mathcal{A}^{\alpha\dot{1}\theta} + 2 \partial^{\theta} f^{\alpha\dot{1}} \right) \right) \right) [t, x, y, z] dz dy dx dt$$

Wave operator

$\overset{0}{\underset{\cdot}{\mathcal{A}}}^{\parallel}$	$\overset{0}{\underset{\cdot}{\mathcal{F}}}^{\parallel}$	$\overset{0}{\underset{\cdot}{\mathcal{F}}}^{\perp}$	$\overset{0}{\underset{\cdot}{\mathcal{A}}}^{\parallel}$	
$\overset{0}{\underset{\cdot}{\mathcal{A}}}^{\parallel} \uparrow$	$-t_{\dot{1}}$	$i \sqrt{2} k t_{\dot{1}}$	0	0
$\overset{0}{\underset{\cdot}{\mathcal{F}}}^{\parallel} \uparrow$	$-i \sqrt{2} k t_{\dot{1}}$	$-2 k^2 t_{\dot{1}}$	0	0
$\overset{0}{\underset{\cdot}{\mathcal{F}}}^{\perp} \uparrow$	0	0	0	0
$\overset{0}{\underset{\cdot}{\mathcal{A}}}^{\parallel} \uparrow$	0	0	0	$\overset{1}{\underset{\cdot}{\mathcal{A}}}^{\parallel}_{\alpha\beta} \overset{1}{\underset{\cdot}{\mathcal{A}}}^{\perp}_{\alpha\beta} \overset{1}{\underset{\cdot}{\mathcal{F}}}^{\parallel}_{\alpha\beta} \overset{1}{\underset{\cdot}{\mathcal{A}}}^{\parallel}_{\alpha} \overset{1}{\underset{\cdot}{\mathcal{A}}}^{\perp}_{\alpha} \overset{1}{\underset{\cdot}{\mathcal{F}}}^{\parallel}_{\alpha} \overset{1}{\underset{\cdot}{\mathcal{F}}}^{\perp}_{\alpha}$
	$\overset{1}{\underset{\cdot}{\mathcal{A}}}^{\parallel} \uparrow^{\alpha\beta}$	$-\frac{t_{\dot{1}}}{2} - \frac{t_{\dot{1}}}{\sqrt{2}} - \frac{i k t_{\dot{1}}}{\sqrt{2}}$	0	0
	$\overset{1}{\underset{\cdot}{\mathcal{A}}}^{\perp} \uparrow^{\alpha\beta}$	$-\frac{t_{\dot{1}}}{\sqrt{2}}$	0	0
	$\overset{1}{\underset{\cdot}{\mathcal{F}}}^{\parallel} \uparrow^{\alpha\beta}$	$\frac{i k t_{\dot{1}}}{\sqrt{2}}$	0	0
	$\overset{1}{\underset{\cdot}{\mathcal{A}}}^{\parallel} \uparrow^{\alpha}$	0	$-k^2 r_{\dot{1}} - \frac{t_{\dot{1}}}{2} \frac{t_{\dot{1}}}{\sqrt{2}}$	$i k t_{\dot{1}}$
	$\overset{1}{\underset{\cdot}{\mathcal{A}}}^{\perp} \uparrow^{\alpha}$	0	$\frac{t_{\dot{1}}}{\sqrt{2}}$	0
	$\overset{1}{\underset{\cdot}{\mathcal{F}}}^{\parallel} \uparrow^{\alpha}$	0	0	0
	$\overset{1}{\underset{\cdot}{\mathcal{F}}}^{\perp} \uparrow^{\alpha}$	0	$-i k t_{\dot{1}}$	0
		$\overset{2}{\underset{\cdot}{\mathcal{A}}}^{\parallel}_{\alpha\beta} \overset{2}{\underset{\cdot}{\mathcal{F}}}^{\parallel}_{\alpha\beta} \overset{2}{\underset{\cdot}{\mathcal{A}}}^{\parallel}_{\alpha\beta\chi}$		
	$\overset{2}{\underset{\cdot}{\mathcal{A}}}^{\parallel} \uparrow^{\alpha\beta}$	$\frac{t_{\dot{1}}}{2} - \frac{i k t_{\dot{1}}}{\sqrt{2}}$	0	
	$\overset{2}{\underset{\cdot}{\mathcal{F}}}^{\parallel} \uparrow^{\alpha\beta}$	$\frac{i k t_{\dot{1}}}{\sqrt{2}}$	$k^2 t_{\dot{1}}$	0
	$\overset{2}{\underset{\cdot}{\mathcal{A}}}^{\parallel} \uparrow^{\alpha\beta\chi}$	0	0	$k^2 r_{\dot{1}} + \frac{t_{\dot{1}}}{2}$

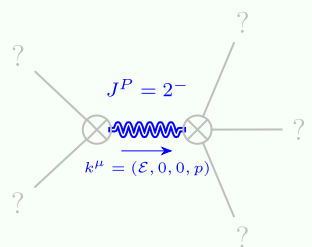
Saturated propagator

$\overset{0}{\underset{\cdot}{\sigma}}^{\parallel}$	$\overset{0}{\underset{\cdot}{\tau}}^{\parallel}$	$\overset{0}{\underset{\cdot}{\tau}}^{\perp}$	$\overset{0}{\underset{\cdot}{\sigma}}^{\parallel}$	
$\overset{0}{\underset{\cdot}{\sigma}}^{\parallel} \uparrow$	$-\frac{1}{(1+2 k^2)^2 t_{\dot{1}}}$	$\frac{i \sqrt{2} k}{(1+2 k^2)^2 t_{\dot{1}}}$	0	0
$\overset{0}{\underset{\cdot}{\tau}}^{\parallel} \uparrow$	$-\frac{i \sqrt{2} k}{(1+2 k^2)^2 t_{\dot{1}}}$	$-\frac{2 k^2}{(1+2 k^2)^2 t_{\dot{1}}}$	0	0
$\overset{0}{\underset{\cdot}{\tau}}^{\perp} \uparrow$	0	0	0	0
$\overset{0}{\underset{\cdot}{\sigma}}^{\parallel} \uparrow$	0	0	0	$-\frac{1}{t_{\dot{1}}}$
	$\overset{1}{\underset{\cdot}{\sigma}}^{\parallel}_{\alpha\beta} \overset{1}{\underset{\cdot}{\sigma}}^{\perp}_{\alpha\beta} \overset{1}{\underset{\cdot}{\tau}}^{\parallel}_{\alpha\beta} \overset{1}{\underset{\cdot}{\sigma}}^{\parallel}_{\alpha} \overset{1}{\underset{\cdot}{\sigma}}^{\perp}_{\alpha} \overset{1}{\underset{\cdot}{\tau}}^{\parallel}_{\alpha} \overset{1}{\underset{\cdot}{\tau}}^{\perp}_{\alpha}$			
	$\overset{1}{\underset{\cdot}{\sigma}}^{\parallel} \uparrow^{\alpha\beta}$	0	$-\frac{\sqrt{2}}{t_{\dot{1}}+k^2 t_{\dot{1}}}$	$-\frac{i \sqrt{2} k}{t_{\dot{1}}+k^2 t_{\dot{1}}}$
	$\overset{1}{\underset{\cdot}{\sigma}}^{\perp} \uparrow^{\alpha\beta}$	$-\frac{\sqrt{2}}{t_{\dot{1}}+k^2 t_{\dot{1}}}$	$\frac{1}{(1+k^2)^2 t_{\dot{1}}}$	$\frac{i k}{(1+k^2)^2 t_{\dot{1}}}$
	$\overset{1}{\underset{\cdot}{\tau}}^{\parallel} \uparrow^{\alpha\beta}$	$\frac{i \sqrt{2} k}{t_{\dot{1}}+k^2 t_{\dot{1}}}$	$-\frac{i k}{(1+k^2)^2 t_{\dot{1}}}$	$\frac{k^2}{(1+k^2)^2 t_{\dot{1}}}$
	$\overset{1}{\underset{\cdot}{\sigma}}^{\parallel} \uparrow^{\alpha}$	0	0	0
	$\overset{1}{\underset{\cdot}{\sigma}}^{\perp} \uparrow^{\alpha}$	0	0	0
	$\overset{1}{\underset{\cdot}{\tau}}^{\parallel} \uparrow^{\alpha}$	0	0	0
	$\overset{1}{\underset{\cdot}{\tau}}^{\perp} \uparrow^{\alpha}$	0	0	0
		$\overset{2}{\underset{\cdot}{\sigma}}^{\parallel}_{\alpha\beta} \overset{2}{\underset{\cdot}{\tau}}^{\parallel}_{\alpha\beta} \overset{2}{\underset{\cdot}{\sigma}}^{\parallel}_{\alpha\beta\chi}$		
	$\overset{2}{\underset{\cdot}{\sigma}}^{\parallel} \uparrow^{\alpha\beta}$	$\frac{2}{(1+2 k^2)^2 t_{\dot{1}}}$	$-\frac{2 i \sqrt{2} k}{(1+2 k^2)^2 t_{\dot{1}}}$	0
	$\overset{2}{\underset{\cdot}{\tau}}^{\parallel} \uparrow^{\alpha\beta}$	$\frac{2 i \sqrt{2} k}{(1+2 k^2)^2 t_{\dot{1}}}$	$\frac{4 k^2}{(1+2 k^2)^2 t_{\dot{1}}}$	0
	$\overset{2}{\underset{\cdot}{\sigma}}^{\parallel} \uparrow^{\alpha\beta\chi}$	0	0	$\frac{2}{2 k^2 r_{\dot{1}}+t_{\dot{1}}}$

Source constraints

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

Massive spectrum



Massive particle

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

Massless spectrum

(No particles)

Unitarity conditions

$$r_{\dot{1}} < 0 \ \&\& \ t_{\dot{1}} > 0$$