

PSALTer results panel

$$S = \iiint \left( \frac{1}{6} \left( 2 t_{\dot{1}} \mathcal{A}^{\alpha\dot{1}}_{\alpha} \mathcal{A}_{\dot{1}\theta}^{\theta} + 6 \mathcal{A}^{\alpha\beta\chi}_{\alpha\beta\chi} \sigma_{\alpha\beta\chi} + 6 f^{\alpha\beta}{}_{\tau} (\Delta + \mathcal{K})_{\alpha\beta}{}^{\tau} - 4 t_{\dot{1}} \mathcal{A}_{\alpha}^{\theta} \partial_{\dot{1}} f^{\alpha\dot{1}} + 4 t_{\dot{1}} \mathcal{A}_{\dot{1}\theta}^{\theta} \partial_{\dot{1}} f^{\alpha}_{\alpha} - 2 t_{\dot{1}} \partial_{\dot{1}} f^{\theta}_{\theta} \partial_{\dot{1}} f^{\alpha}_{\alpha} - \right. \right. \\ \left. \left. 2 t_{\dot{1}} \partial_{\dot{1}} f^{\alpha\dot{1}} \partial_{\theta} f^{\theta}_{\alpha} + 4 t_{\dot{1}} \partial_{\dot{1}} f^{\alpha}_{\alpha} \partial_{\theta} f^{\theta}_{\dot{1}} + 8 r_{\dot{2}} \partial_{\beta} \mathcal{A}_{\alpha\dot{1}\theta} \partial^{\theta} \mathcal{A}^{\alpha\beta\dot{1}} - 4 r_{\dot{2}} \partial_{\beta} \mathcal{A}_{\alpha\theta\dot{1}} \partial^{\theta} \mathcal{A}^{\alpha\beta\dot{1}} + 4 r_{\dot{2}} \partial_{\beta} \mathcal{A}_{\dot{1}\theta\alpha} \partial^{\theta} \mathcal{A}^{\alpha\beta\dot{1}} - \right. \right. \\ \left. \left. 2 r_{\dot{2}} \partial_{\dot{1}} \mathcal{A}_{\alpha\beta\theta} \partial^{\theta} \mathcal{A}^{\alpha\beta\dot{1}} + 2 r_{\dot{2}} \partial_{\theta} \mathcal{A}_{\alpha\beta\dot{1}} \partial^{\theta} \mathcal{A}^{\alpha\beta\dot{1}} - 4 r_{\dot{2}} \partial_{\theta} \mathcal{A}_{\alpha\dot{1}\beta} \partial^{\theta} \mathcal{A}^{\alpha\beta\dot{1}} - 6 t_{\dot{1}} \partial_{\alpha} f_{\dot{1}\theta} \partial^{\theta} f^{\alpha\dot{1}} - 3 t_{\dot{1}} \partial_{\alpha} f_{\theta\dot{1}} \partial^{\theta} f^{\alpha\dot{1}} + \right. \right. \\ \left. \left. 3 t_{\dot{1}} \partial_{\dot{1}} f_{\alpha\theta} \partial^{\theta} f^{\alpha\dot{1}} + 3 t_{\dot{1}} \partial_{\theta} f_{\alpha\dot{1}} \partial^{\theta} f^{\alpha\dot{1}} + 3 t_{\dot{1}} \partial_{\theta} f_{\dot{1}\alpha} \partial^{\theta} f^{\alpha\dot{1}} + 6 t_{\dot{1}} \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

$\overset{0}{\cdot}\mathcal{A}^{\parallel} \dagger$	$\overset{0}{\cdot}f^{\parallel} \dagger$	$\overset{0}{\cdot}f^{\perp} \dagger$	$\overset{0}{\cdot}\mathcal{A}^{\parallel}$								
0	0	0	0								
0	0	0	0								
0	0	0	0								
$\overset{0}{\cdot}\mathcal{A}^{\parallel} \dagger$	0	0	0	$k^2 r_{\dot{2}} - t_{\dot{1}}$	$\overset{1}{\cdot}\mathcal{A}^{\parallel}_{\alpha\beta}$	$\overset{1}{\cdot}\mathcal{A}^{\perp}_{\alpha\beta}$	$\overset{1}{\cdot}f^{\parallel}_{\alpha\beta}$	$\overset{1}{\cdot}\mathcal{A}^{\parallel}_{\alpha}$	$\overset{1}{\cdot}\mathcal{A}^{\perp}_{\alpha}$	$\overset{1}{\cdot}f^{\parallel}_{\alpha}$	$\overset{1}{\cdot}f^{\perp}_{\alpha}$
$\overset{1}{\cdot}\mathcal{A}^{\parallel} \dagger^{\alpha\beta}$	$-\frac{t_{\dot{1}}}{2}$	$-\frac{t_{\dot{1}}}{\sqrt{2}}$	$-\frac{i k t_{\dot{1}}}{\sqrt{2}}$	0	0	0	0				
$\overset{1}{\cdot}\mathcal{A}^{\perp} \dagger^{\alpha\beta}$	$-\frac{t_{\dot{1}}}{\sqrt{2}}$	0	0	0	0	0	0				
$\overset{1}{\cdot}f^{\parallel} \dagger^{\alpha\beta}$	$\frac{i k t_{\dot{1}}}{\sqrt{2}}$	0	0	0	0	0	0				
$\overset{1}{\cdot}\mathcal{A}^{\parallel} \dagger^{\alpha}$	0	0	0	$\frac{t_{\dot{1}}}{6}$	$\frac{t_{\dot{1}}}{3\sqrt{2}}$	0	$\frac{i k t_{\dot{1}}}{3}$				
$\overset{1}{\cdot}\mathcal{A}^{\perp} \dagger^{\alpha}$	0	0	0	$\frac{t_{\dot{1}}}{3\sqrt{2}}$	$\frac{t_{\dot{1}}}{3}$	0	$\frac{1}{3} i \sqrt{2} k t_{\dot{1}}$				
$\overset{1}{\cdot}f^{\parallel} \dagger^{\alpha}$	0	0	0	0	0	0	0				
$\overset{1}{\cdot}f^{\perp} \dagger^{\alpha}$	0	0	0	$-\frac{1}{3} i k t_{\dot{1}}$	$-\frac{1}{3} i \sqrt{2} k t_{\dot{1}}$	0	$\frac{2 k^2 t_{\dot{1}}}{3}$	$\overset{2}{\cdot}\mathcal{A}^{\parallel}_{\alpha\beta}$	$\overset{2}{\cdot}f^{\parallel}_{\alpha\beta}$	$\overset{2}{\cdot}\mathcal{A}^{\parallel}_{\alpha\beta\chi}$	
								$\overset{2}{\cdot}\mathcal{A}^{\parallel} \dagger^{\alpha\beta}$	$\frac{t_{\dot{1}}}{2}$	$-\frac{i k t_{\dot{1}}}{\sqrt{2}}$	0
								$\overset{2}{\cdot}f^{\parallel} \dagger^{\alpha\beta}$	$\frac{i k t_{\dot{1}}}{\sqrt{2}}$	$k^2 t_{\dot{1}}$	0
								$\overset{2}{\cdot}\mathcal{A}^{\parallel} \dagger^{\alpha\beta\chi}$	0	0	$\frac{t_{\dot{1}}}{2}$

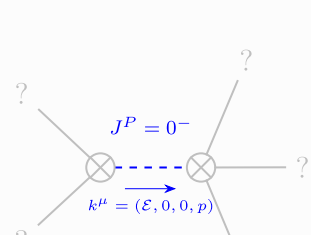
Saturated propagator

$\overset{0}{\cdot}\sigma^{\parallel}$	$\overset{0}{\cdot}\tau^{\parallel}$	$\overset{0}{\cdot}\tau^{\perp}$	$\overset{0}{\cdot}\sigma^{\parallel}$								
$\overset{0}{\cdot}\sigma^{\parallel} \dagger$	0	0	0	0							
$\overset{0}{\cdot}\tau^{\parallel} \dagger$	0	0	0	0							
$\overset{0}{\cdot}\tau^{\perp} \dagger$	0	0	0	0							
$\overset{0}{\cdot}\sigma^{\parallel} \dagger$	0	0	0	$\frac{1}{k^2 r_{\dot{2}} - t_{\dot{1}}}$	$\overset{1}{\cdot}\sigma^{\parallel}_{\alpha\beta}$	$\overset{1}{\cdot}\sigma^{\perp}_{\alpha\beta}$	$\overset{1}{\cdot}\tau^{\parallel}_{\alpha\beta}$	$\overset{1}{\cdot}\sigma^{\parallel}_{\alpha}$	$\overset{1}{\cdot}\sigma^{\perp}_{\alpha}$	$\overset{1}{\cdot}\tau^{\parallel}_{\alpha}$	$\overset{1}{\cdot}\tau^{\perp}_{\alpha}$
$\overset{1}{\cdot}\sigma^{\parallel} \dagger^{\alpha\beta}$	0	$-\frac{\sqrt{2}}{t_{\dot{1}} + k^2 t_{\dot{1}}}$	$-\frac{i \sqrt{2} k}{t_{\dot{1}} + k^2 t_{\dot{1}}}$	0	0	0	0				
$\overset{1}{\cdot}\sigma^{\perp} \dagger^{\alpha\beta}$	$-\frac{\sqrt{2}}{t_{\dot{1}} + k^2 t_{\dot{1}}}$	$\frac{1}{(1+k^2)^2 t_{\dot{1}}}$	$\frac{i k}{(1+k^2)^2 t_{\dot{1}}}$	0	0	0	0				
$\overset{1}{\cdot}\tau^{\parallel} \dagger^{\alpha\beta}$	$\frac{i \sqrt{2} k}{t_{\dot{1}} + k^2 t_{\dot{1}}}$	$-\frac{i k}{(1+k^2)^2 t_{\dot{1}}}$	$\frac{k^2}{(1+k^2)^2 t_{\dot{1}}}$	0	0	0	0				
$\overset{1}{\cdot}\sigma^{\parallel} \dagger^{\alpha}$	0	0	0	$\frac{6}{(3+4 k^2)^2 t_{\dot{1}}}$	$\frac{6 \sqrt{2}}{(3+4 k^2)^2 t_{\dot{1}}}$	0	$\frac{12 i k}{(3+4 k^2)^2 t_{\dot{1}}}$				
$\overset{1}{\cdot}\sigma^{\perp} \dagger^{\alpha}$	0	0	0	$\frac{6 \sqrt{2}}{(3+4 k^2)^2 t_{\dot{1}}}$	$\frac{12}{(3+4 k^2)^2 t_{\dot{1}}}$	0	$\frac{12 i \sqrt{2} k}{(3+4 k^2)^2 t_{\dot{1}}}$				
$\overset{1}{\cdot}\tau^{\parallel} \dagger^{\alpha}$	0	0	0	0	0	0	0				
$\overset{1}{\cdot}\tau^{\perp} \dagger^{\alpha}$	0	0	0	$-\frac{12 i k}{(3+4 k^2)^2 t_{\dot{1}}}$	$-\frac{12 i \sqrt{2} k}{(3+4 k^2)^2 t_{\dot{1}}}$	0	$\frac{24 k^2}{(3+4 k^2)^2 t_{\dot{1}}}$	$\overset{2}{\cdot}\sigma^{\parallel}_{\alpha\beta}$	$\overset{2}{\cdot}\tau^{\parallel}_{\alpha\beta}$	$\overset{2}{\cdot}\sigma^{\parallel}_{\alpha\beta\chi}$	
								$\overset{2}{\cdot}\sigma^{\parallel} \dagger^{\alpha\beta}$	$\frac{2}{(1+2 k^2)^2 t_{\dot{1}}}$	$-\frac{2 i \sqrt{2} k}{(1+2 k^2)^2 t_{\dot{1}}}$	0
								$\overset{2}{\cdot}\tau^{\parallel} \dagger^{\alpha\beta}$	$\frac{2 i \sqrt{2} k}{(1+2 k^2)^2 t_{\dot{1}}}$	$\frac{4 k^2}{(1+2 k^2)^2 t_{\dot{1}}}$	0
								$\overset{2}{\cdot}\sigma^{\parallel} \dagger^{\alpha\beta\chi}$	0	0	$\frac{2}{t_{\dot{1}}}$

Source constraints

Spin-parity form	Covariant form	Multiplicities
$\overset{0}{\cdot}\tau^{\perp} == 0$	$\partial_{\beta} \partial_{\alpha \tau} (\Delta + \mathcal{K})^{\alpha\beta} == 0$	1
$\overset{0}{\cdot}\tau^{\parallel} == 0$	$\partial_{\beta} \partial_{\alpha \tau} (\Delta + \mathcal{K})^{\alpha\beta} == \partial_{\beta} \partial^{\beta}{}_{\tau} (\Delta + \mathcal{K})^{\alpha}_{\alpha}$	1
$\overset{0}{\cdot}\sigma^{\parallel} == 0$	$\partial_{\beta} \sigma^{\alpha}{}_{\alpha}{}^{\beta} == 0$	1
$2 i k \overset{1}{\cdot}\sigma^{\perp\alpha} + \overset{1}{\cdot}\tau^{\perp\alpha} == 0$	$\partial_{\chi} \partial_{\beta} \partial^{\alpha}{}_{\tau} (\Delta + \mathcal{K})^{\beta\chi} + 2 \left( \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\alpha} \sigma^{\beta}{}_{\beta}{}^{\chi} - \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial_{\beta} \sigma^{\beta\alpha\chi} + \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\alpha} \sigma^{\beta\alpha}_{\beta} \right) == \partial_{\chi} \partial^{\chi} \partial_{\beta \tau} (\Delta + \mathcal{K})^{\alpha\beta}$	3
$\overset{1}{\cdot}\tau^{\parallel\alpha} == 0$	$\partial_{\chi} \partial_{\beta} \partial^{\alpha}{}_{\tau} (\Delta + \mathcal{K})^{\beta\chi} == \partial_{\chi} \partial^{\chi} \partial_{\beta \tau} (\Delta + \mathcal{K})^{\beta\alpha}$	3
$\overset{1}{\cdot}\sigma^{\parallel\alpha} == \overset{1}{\cdot}\sigma^{\perp\alpha}$	$\partial_{\chi} \partial^{\alpha} \sigma^{\beta}{}_{\beta}{}^{\chi} + \partial_{\chi} \partial^{\chi} \sigma^{\beta\alpha}_{\beta}{}^{\alpha} == 0$	3
$i k \overset{1}{\cdot}\sigma^{\perp\alpha\beta} + \overset{1}{\cdot}\tau^{\parallel\alpha\beta} == 0$	$\partial_{\chi} \partial^{\alpha}{}_{\tau} (\Delta + \mathcal{K})^{\beta\chi} + \partial_{\chi} \partial^{\beta}{}_{\tau} (\Delta + \mathcal{K})^{\chi\alpha} + \partial_{\chi} \partial^{\chi}{}_{\tau} (\Delta + \mathcal{K})^{\alpha\beta} + 2 \partial_{\delta} \partial_{\chi} \partial^{\alpha} \sigma^{\chi\beta\delta} + 2 \partial_{\delta} \partial^{\delta} \partial_{\chi} \sigma^{\chi\alpha\beta} ==$ $\partial_{\chi} \partial^{\alpha}{}_{\tau} (\Delta + \mathcal{K})^{\chi\beta} + \partial_{\chi} \partial^{\beta}{}_{\tau} (\Delta + \mathcal{K})^{\alpha\chi} + \partial_{\chi} \partial^{\chi}{}_{\tau} (\Delta + \mathcal{K})^{\beta\alpha} + 2 \partial_{\delta} \partial_{\chi} \partial^{\beta} \sigma^{\chi\alpha\delta}$	3
$-2 i k \overset{2}{\cdot}\sigma^{\parallel\alpha\beta} + \overset{2}{\cdot}\tau^{\parallel\alpha\beta} == 0$	$-i \left( 4 \partial_{\delta} \partial_{\chi} \partial^{\beta} \partial^{\alpha}{}_{\tau} (\Delta + \mathcal{K})^{\chi\delta} + 2 \partial_{\delta} \partial^{\delta} \partial^{\beta} \partial^{\alpha}{}_{\tau} (\Delta + \mathcal{K})^{\chi}_{\chi} - \right.$ $3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\alpha}{}_{\tau} (\Delta + \mathcal{K})^{\beta\chi} - 3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\alpha}{}_{\tau} (\Delta + \mathcal{K})^{\chi\beta} - 3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\beta}{}_{\tau} (\Delta + \mathcal{K})^{\alpha\chi} -$ $3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\beta}{}_{\tau} (\Delta + \mathcal{K})^{\chi\alpha} + 3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\alpha}{}_{\tau} (\Delta + \mathcal{K})^{\alpha\beta} + 3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\alpha}{}_{\tau} (\Delta + \mathcal{K})^{\beta\alpha} +$ $4 i k^{\chi} \partial_{\epsilon} \partial_{\chi} \partial^{\beta} \partial^{\alpha} \sigma^{\delta}_{\delta}{}^{\epsilon} - 6 i k^{\chi} \partial_{\epsilon} \partial_{\delta} \partial_{\chi} \partial^{\alpha} \sigma^{\delta\beta\epsilon} - 6 i k^{\chi} \partial_{\epsilon} \partial_{\delta} \partial_{\chi} \partial^{\beta} \sigma^{\delta\alpha\epsilon} +$ $6 i k^{\chi} \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial_{\chi} \sigma^{\alpha\beta\delta} + 6 i k^{\chi} \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial_{\chi} \sigma^{\beta\alpha\delta} + 2 \eta^{\alpha\beta} \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial_{\chi \tau} (\Delta + \mathcal{K})^{\chi\delta} -$ $\left. 2 \eta^{\alpha\beta} \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\delta}{}_{\tau} (\Delta + \mathcal{K})^{\chi}_{\chi} - 4 i \eta^{\alpha\beta} k^{\chi} \partial_{\phi} \partial^{\phi} \partial_{\epsilon} \partial_{\chi} \sigma^{\delta}_{\delta}{}^{\epsilon} \right) == 0$	5
Total expected gauge generators:		20

Massive spectrum



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

Massless spectrum

(There are no massless particles)

Gauge symmetries

(Not yet implemented in PSALTer)

Unitarity conditions

$r_{\dot{2}} < 0 \&\& t_{\dot{1}} < 0$

Validity assumptions

(Not yet implemented in PSALTer)