

PSALTer results panel

$$\begin{aligned} S = & \iiint \iiint \left( \frac{1}{6} \left( 6 t_{\dot{1}} \mathcal{A}^{\alpha'}_{\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} - 12 t_{\dot{1}} \mathcal{A}_{\alpha}{}^{\theta} \partial_{\dot{f}} f^{\alpha'} + 12 t_{\dot{1}} \mathcal{A}_{,\theta}{}^{\theta} \partial' f^{\alpha}_{\alpha} - 6 t_{\dot{1}} \partial_{\dot{f}} f^{\theta}{}_{\theta} \partial' f^{\alpha}_{\alpha} - 6 t_{\dot{1}} \partial_{\dot{f}} f^{\alpha'} \partial_{\theta} f_{\alpha}{}^{\theta} + \right. \\ & 12 t_{\dot{1}} \partial' f^{\alpha}_{\alpha} \partial_{\theta} f_{,\theta}{}^{\theta} + 6 r_{\dot{5}} \partial_{\dot{f}} \mathcal{A}_{\theta}{}^{\kappa} \partial^{\theta} \mathcal{A}^{\alpha'}_{\alpha} - 6 r_{\dot{5}} \partial_{\theta} \mathcal{A}_{,\kappa}{}^{\kappa} \partial^{\theta} \mathcal{A}^{\alpha'}_{\alpha} + 4 t_{\dot{1}} \mathcal{A}_{,\theta\alpha} \partial^{\theta} f^{\alpha'} + 4 t_{\dot{2}} \mathcal{A}_{,\theta\alpha} \partial^{\theta} f^{\alpha'} - 4 t_{\dot{1}} \partial_{\alpha} f_{,\theta} \partial^{\theta} f^{\alpha'} + 2 t_{\dot{2}} \partial_{\alpha} f_{,\theta} \partial^{\theta} f^{\alpha'} - 4 t_{\dot{1}} \partial_{\alpha} f_{\theta,\dot{1}} \partial^{\theta} f^{\alpha'} - \\ & t_{\dot{2}} \partial_{\alpha} f_{\theta,\dot{1}} \partial^{\theta} f^{\alpha'} + 2 t_{\dot{1}} \partial_{\dot{f}} f_{\alpha\theta} \partial^{\theta} f^{\alpha'} - t_{\dot{2}} \partial_{\dot{f}} f_{\alpha\theta} \partial^{\theta} f^{\alpha'} + 4 t_{\dot{1}} \partial_{\theta} f_{\alpha,\dot{1}} \partial^{\theta} f^{\alpha'} + t_{\dot{2}} \partial_{\theta} f_{\alpha,\dot{1}} \partial^{\theta} f^{\alpha'} + 2 t_{\dot{1}} \partial_{\theta} f_{,\alpha} \partial^{\theta} f^{\alpha'} - t_{\dot{2}} \partial_{\theta} f_{,\alpha} \partial^{\theta} f^{\alpha'} + 2 \left( t_{\dot{1}} + t_{\dot{2}} \right) \mathcal{A}_{\alpha,\theta} \left( \mathcal{A}^{\alpha'\theta} + 2 \partial^{\theta} f^{\alpha'} \right) + \\ & \left. 2 \mathcal{A}_{\alpha\theta,\dot{1}} \left( \left( t_{\dot{1}} - 2 t_{\dot{2}} \right) \mathcal{A}^{\alpha'\theta} + 2 \left( 2 t_{\dot{1}} - t_{\dot{2}} \right) \partial^{\theta} f^{\alpha'} \right) - 6 r_{\dot{5}} \partial_{\alpha} \mathcal{A}^{\alpha'\theta} \partial_{\kappa} \mathcal{A}_{,\theta}{}^{\kappa} + 12 r_{\dot{5}} \partial^{\theta} \mathcal{A}^{\alpha'}_{\alpha} \partial_{\kappa} \mathcal{A}_{,\theta}{}^{\kappa} + 6 r_{\dot{5}} \partial_{\alpha} \mathcal{A}^{\alpha'\theta} \partial_{\kappa} \mathcal{A}_{\theta,\dot{1}}{}^{\kappa} - 12 r_{\dot{5}} \partial^{\theta} \mathcal{A}^{\alpha'}_{\alpha} \partial_{\kappa} \mathcal{A}_{\theta,\dot{1}}{}^{\kappa} \right) [t, x, y, z] dz dy dx dt \end{aligned}$$

Wave operator

$\overset{0}{\cdot}\mathcal{A}^{\parallel}\dagger$	$\overset{0}{\cdot}f^{\parallel}$	$\overset{0}{\cdot}f^{\perp}$	$\overset{0}{\cdot}\mathcal{A}^{\parallel}$										
$\overset{0}{\cdot}\mathcal{A}^{\parallel}\dagger$	$-t_{\dot{1}}$	$i\sqrt{2}kt_{\dot{1}}$	$0$	$0$									
$\overset{0}{\cdot}f^{\parallel}\dagger$	$-i\sqrt{2}kt_{\dot{1}}$	$-2k^2t_{\dot{1}}$	$0$	$0$									
$\overset{0}{\cdot}f^{\perp}\dagger$	$0$	$0$	$0$	$0$									
$\overset{0}{\cdot}\mathcal{A}^{\parallel}\dagger$	$0$	$0$	$0$	$t_{\dot{2}}$	$\overset{1}{\cdot}\mathcal{A}^{\parallel}_{\alpha\beta}$	$\overset{1}{\cdot}\mathcal{A}^{\perp}_{\alpha\beta}$	$\overset{1}{\cdot}f^{\parallel}_{\alpha\beta}$	$\overset{1}{\cdot}\mathcal{A}^{\parallel}_{\alpha}$	$\overset{1}{\cdot}\mathcal{A}^{\perp}_{\alpha}$	$\overset{1}{\cdot}f^{\parallel}_{\alpha}$	$\overset{1}{\cdot}f^{\perp}_{\alpha}$		
$\overset{1}{\cdot}\mathcal{A}^{\parallel}\dagger^{\alpha\beta}$	$\frac{1}{6}\left(6k^2r_{\dot{5}}+t_{\dot{1}}+4t_{\dot{2}}\right)$	$-\frac{t_{\dot{1}}-2t_{\dot{2}}}{3\sqrt{2}}$	$-\frac{ik\left(t_{\dot{1}}-2t_{\dot{2}}\right)}{3\sqrt{2}}$	$0$	$0$	$0$	$0$						
$\overset{1}{\cdot}\mathcal{A}^{\perp}\dagger^{\alpha\beta}$	$-\frac{t_{\dot{1}}-2t_{\dot{2}}}{3\sqrt{2}}$	$\frac{t_{\dot{1}}+t_{\dot{2}}}{3}$	$\frac{1}{3}ik\left(t_{\dot{1}}+t_{\dot{2}}\right)$	$0$	$0$	$0$	$0$						
$\overset{1}{\cdot}f^{\parallel}\dagger^{\alpha\beta}$	$\frac{ik\left(t_{\dot{1}}-2t_{\dot{2}}\right)}{3\sqrt{2}}$	$-\frac{1}{3}ik\left(t_{\dot{1}}+t_{\dot{2}}\right)$	$\frac{1}{3}k^2\left(t_{\dot{1}}+t_{\dot{2}}\right)$	$0$	$0$	$0$	$0$						
$\overset{1}{\cdot}\mathcal{A}^{\parallel}\dagger^{\alpha}$	$0$	$0$	$0$	$k^2r_{\dot{5}}-\frac{t_{\dot{1}}}{2}$	$\frac{t_{\dot{1}}}{\sqrt{2}}$	$0$	$ik t_{\dot{1}}$						
$\overset{1}{\cdot}\mathcal{A}^{\perp}\dagger^{\alpha}$	$0$	$0$	$0$	$\frac{t_{\dot{1}}}{\sqrt{2}}$	$0$	$0$	$0$						
$\overset{1}{\cdot}f^{\parallel}\dagger^{\alpha}$	$0$	$0$	$0$	$0$	$0$	$0$	$0$						
$\overset{1}{\cdot}f^{\perp}\dagger^{\alpha}$	$0$	$0$	$0$	$-ik t_{\dot{1}}$	$0$	$0$	$0$						
				$\overset{2}{\cdot}\mathcal{A}^{\parallel}_{\alpha\beta}$	$\overset{2}{\cdot}f^{\parallel}_{\alpha\beta}$	$\overset{2}{\cdot}\mathcal{A}^{\parallel}_{\alpha\beta\chi}$							
				$\overset{2}{\cdot}\mathcal{A}^{\parallel}\dagger^{\alpha\beta}$	$\frac{t_{\dot{1}}}{2}-\frac{ik t_{\dot{1}}}{\sqrt{2}}$	$0$							
				$\overset{2}{\cdot}f^{\parallel}\dagger^{\alpha\beta}$	$\frac{ik t_{\dot{1}}}{\sqrt{2}}$	$k^2t_{\dot{1}}$	$0$						
				$\overset{2}{\cdot}\mathcal{A}^{\parallel}\dagger^{\alpha\beta\chi}$	$0$	$0$	$\frac{t_{\dot{1}}}{2}$						

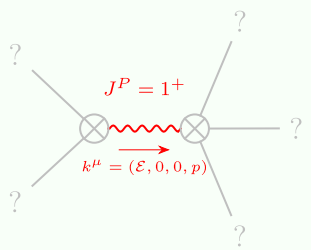
Saturated propagator

$\overset{0}{\cdot}\sigma^{\parallel}$	$\overset{0}{\cdot}\tau^{\parallel}$	$\overset{0}{\cdot}\tau^{\perp}$	$\overset{0}{\cdot}\sigma^{\parallel}$										
$\overset{0}{\cdot}\sigma^{\parallel}\dagger$	$-\frac{1}{\left(1+2k^2\right)^2t_{\dot{1}}}$	$\frac{i\sqrt{2}k}{\left(1+2k^2\right)^2t_{\dot{1}}}$	0	0									
$\overset{0}{\cdot}\tau^{\parallel}\dagger$	$-\frac{i\sqrt{2}k}{\left(1+2k^2\right)^2t_{\dot{1}}}$	$-\frac{2k^2}{\left(1+2k^2\right)^2t_{\dot{1}}}$	0	0									
$\overset{0}{\cdot}\tau^{\perp}\dagger$	0	0	0	0									
$\overset{0}{\cdot}\sigma^{\parallel}\dagger$	0	0	0	$\frac{1}{t_{\dot{2}}}$	$\overset{1}{\cdot}\sigma^{\parallel}_{\alpha\beta}$	$\overset{1}{\cdot}\sigma^{\perp}_{\alpha\beta}$	$\overset{1}{\cdot}\tau^{\parallel}_{\alpha\beta}$	$\overset{1}{\cdot}\sigma^{\parallel}_{\alpha}$	$\overset{1}{\cdot}\sigma^{\perp}_{\alpha}$	$\overset{1}{\cdot}\tau^{\parallel}_{\alpha}$	$\overset{1}{\cdot}\tau^{\perp}_{\alpha}$		
$\overset{1}{\cdot}\sigma^{\parallel}\dagger^{\alpha\beta}$	$\frac{2\left(t_{\dot{1}}+t_{\dot{2}}\right)}{3t_{\dot{1}}t_{\dot{2}}+2k^2r_{\dot{5}}\left(t_{\dot{1}}+t_{\dot{2}}\right)}$	$\frac{\sqrt{2}\left(t_{\dot{1}}-2t_{\dot{2}}\right)}{\left(1+k^2\right)\left(3t_{\dot{1}}t_{\dot{2}}+2k^2r_{\dot{5}}\left(t_{\dot{1}}+t_{\dot{2}}\right)\right)}$	$\frac{i\sqrt{2}k\left(t_{\dot{1}}-2t_{\dot{2}}\right)}{\left(1+k^2\right)\left(3t_{\dot{1}}t_{\dot{2}}+2k^2r_{\dot{5}}\left(t_{\dot{1}}+t_{\dot{2}}\right)\right)}$	0	0	0	0						
$\overset{1}{\cdot}\sigma^{\perp}\dagger^{\alpha\beta}$	$\frac{\sqrt{2}\left(t_{\dot{1}}-2t_{\dot{2}}\right)}{\left(1+k^2\right)\left(3t_{\dot{1}}t_{\dot{2}}+2k^2r_{\dot{5}}\left(t_{\dot{1}}+t_{\dot{2}}\right)\right)}$	$\frac{6k^2r_{\dot{5}}+t_{\dot{1}}+4t_{\dot{2}}}{\left(1+k^2\right)^2\left(3t_{\dot{1}}t_{\dot{2}}+2k^2r_{\dot{5}}\left(t_{\dot{1}}+t_{\dot{2}}\right)\right)}$	$\frac{ik\left(6k^2r_{\dot{5}}+t_{\dot{1}}+4t_{\dot{2}}\right)}{\left(1+k^2\right)^2\left(3t_{\dot{1}}t_{\dot{2}}+2k^2r_{\dot{5}}\left(t_{\dot{1}}+t_{\dot{2}}\right)\right)}$	0	0	0	0						
$\overset{1}{\cdot}\tau^{\parallel}\dagger^{\alpha\beta}$	$-\frac{i\sqrt{2}k\left(t_{\dot{1}}-2t_{\dot{2}}\right)}{\left(1+k^2\right)\left(3t_{\dot{1}}t_{\dot{2}}+2k^2r_{\dot{5}}\left(t_{\dot{1}}+t_{\dot{2}}\right)\right)}$	$-\frac{ik\left(6k^2r_{\dot{5}}+t_{\dot{1}}+4t_{\dot{2}}\right)}{\left(1+k^2\right)^2\left(3t_{\dot{1}}t_{\dot{2}}+2k^2r_{\dot{5}}\left(t_{\dot{1}}+t_{\dot{2}}\right)\right)}$	$-\frac{k^2\left(6k^2r_{\dot{5}}+t_{\dot{1}}+4t_{\dot{2}}\right)}{\left(1+k^2\right)^2\left(3t_{\dot{1}}t_{\dot{2}}+2k^2r_{\dot{5}}\left(t_{\dot{1}}+t_{\dot{2}}\right)\right)}$	0	0	0	0						
$\overset{1}{\cdot}\sigma^{\parallel}\dagger^{\alpha}$	0	0	0	0	$\frac{\sqrt{2}}{t_{\dot{1}}+2k^2t_{\dot{1}}}$	0	$\frac{2ik}{t_{\dot{1}}+2k^2t_{\dot{1}}}$						
$\overset{1}{\cdot}\sigma^{\perp}\dagger^{\alpha}$	0	0	0	$\frac{\sqrt{2}}{t_{\dot{1}}+2k^2t_{\dot{1}}}$	$\frac{-2k^2r_{\dot{5}}+t_{\dot{1}}}{\left(t_{\dot{1}}+2k^2t_{\dot{1}}\right)^2}$	0	$-\frac{i\sqrt{2}k\left(2k^2r_{\dot{5}}-t_{\dot{1}}\right)}{\left(t_{\dot{1}}+2k^2t_{\dot{1}}\right)^2}$						
$\overset{1}{\cdot}\tau^{\parallel}\dagger^{\alpha}$	0	0	0	0	0	0	0						
$\overset{1}{\cdot}\tau^{\perp}\dagger^{\alpha}$	0	0	0	$-\frac{2ik}{t_{\dot{1}}+2k^2t_{\dot{1}}}$	$\frac{i\sqrt{2}k\left(2k^2r_{\dot{5}}-t_{\dot{1}}\right)}{\left(t_{\dot{1}}+2k^2t_{\dot{1}}\right)^2}$	0	$\frac{-4k^4r_{\dot{5}}+2k^2t_{\dot{1}}}{\left(t_{\dot{1}}+2k^2t_{\dot{1}}\right)^2}$	$\overset{2}{\cdot}\sigma^{\parallel}_{\alpha\beta}$	$\overset{2}{\cdot}\tau^{\parallel}_{\alpha\beta}$	$\overset{2}{\cdot}\sigma^{\parallel}_{\alpha\beta\chi}$			
				$\overset{2}{\cdot}\sigma^{\parallel}\dagger^{\alpha\beta}$	$\frac{2}{\left(1+2k^2\right)^2t_{\dot{1}}}-\frac{2i\sqrt{2}k}{\left(1+2k^2\right)^2t_{\dot{1}}}$		0						
				$\overset{2}{\cdot}\tau^{\parallel}\dagger^{\alpha\beta}$	$\frac{2i\sqrt{2}k}{\left(1+2k^2\right)^2t_{\dot{1}}}$	$\frac{4k^2}{\left(1+2k^2\right)^2t_{\dot{1}}}$	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
$\overset{0}{\cdot}\tau^{\perp} == 0$	$\partial_{\beta}\partial_{\alpha\tau}\left(\Delta+\mathcal{K}\right)^{\alpha\beta} == 0$	1
$-2\,i\,k\,\overset{0}{\cdot}\sigma^{\parallel} + \overset{0}{\cdot}\tau^{\perp} == 0$	$\partial_{\beta}\partial_{\alpha\tau}\left(\Delta+\mathcal{K}\right)^{\alpha\beta} == \partial_{\beta}\partial^{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\alpha}_{\alpha} + 2\,\partial_{\chi}\partial^{\chi}\partial_{\beta}\sigma^{\alpha}_{\alpha}{}^{\beta}$	1
$2\,i\,k\,\overset{1}{\cdot}\sigma^{\perp}{}^{\alpha} + \overset{1}{\cdot}\tau^{\perp}{}^{\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta\tau}\left(\Delta+\mathcal{K}\right)^{\alpha\beta} + 2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial_{\beta}\sigma^{\beta\alpha\chi}$	3
$\overset{1}{\cdot}\tau^{\parallel}{}^{\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta\tau}\left(\Delta+\mathcal{K}\right)^{\beta\alpha}$	3
$i\,k\,\overset{1}{\cdot}\sigma^{\perp}{}^{\alpha\beta} + \overset{1}{\cdot}\tau^{\parallel}{}^{\alpha\beta} == 0$	$\partial_{\chi}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\beta\chi} + \partial_{\chi}\partial^{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\chi\alpha} + \partial_{\chi}\partial^{\chi}\tau\left(\Delta+\mathcal{K}\right)^{\alpha\beta} + 2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta} + 2\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\chi\alpha\beta} == \partial_{\chi}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\chi\beta} + \partial_{\chi}\partial^{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\alpha\chi} + \partial_{\chi}\partial^{\chi}\tau\left(\Delta+\mathcal{K}\right)^{\beta\alpha} + 2\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta}$	3
$-2\,i\,k\,\overset{2}{\cdot}\sigma^{\parallel}{}^{\alpha\beta} + \overset{2}{\cdot}\tau^{\parallel}{}^{\alpha\beta} == 0$	$-i\left(4\,\partial_{\delta}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\chi\delta} + 2\,\partial_{\delta}\partial^{\delta}\partial^{\beta}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\chi}_{\chi} - 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\beta\chi} - 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\chi\beta} - 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\alpha\chi} - \right.$ $3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\chi\alpha} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau\left(\Delta+\mathcal{K}\right)^{\alpha\beta} + 3\,\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau\left(\Delta+\mathcal{K}\right)^{\beta\alpha} + 4\,i\,k^{\chi}\,\partial_{\epsilon}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\sigma^{\delta}_{\delta}{}^{\epsilon} - 6\,i\,k^{\chi}\,\partial_{\epsilon}\partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\delta\beta\epsilon} - 6\,i\,k^{\chi}\,\partial_{\epsilon}\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\delta\alpha\epsilon} +$ $\left.6\,i\,k^{\chi}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\sigma^{\alpha\beta\delta} + 6\,i\,k^{\chi}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\sigma^{\beta\alpha\delta} + 2\,\eta^{\alpha\beta}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial_{\chi}\tau\left(\Delta+\mathcal{K}\right)^{\chi\delta} - 2\,\eta^{\alpha\beta}\,\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\tau\left(\Delta+\mathcal{K}\right)^{\chi}_{\chi} - 4\,i\,\eta^{\alpha\beta}\,k^{\chi}\,\partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial_{\chi}\sigma^{\delta}_{\delta}{}^{\epsilon}\right) == 0$	5
Total expected gauge generators:		16

Massive spectrum



Massive particle

Pole residue:	$\frac{-3t_{\dot{1}}t_{\dot{2}}\left(t_{\dot{1}}+t_{\dot{2}}\right)+3r_{\dot{5}}\left(t_{\dot{1}}^2+2t_{\dot{2}}^2\right)}{r_{\dot{5}}\left(t_{\dot{1}}+t_{\dot{2}}\right)\left(-3t_{\dot{1}}t_{\dot{2}}+2r_{\dot{5}}\left(t_{\dot{1}}+t_{\dot{2}}\right)\right)} > 0$
Square mass:	$-\frac{3t_{\dot{1}}t_{\dot{2}}}{2r_{\dot{5}}t_{\dot{1}}+2r_{\dot{5}}t_{\dot{2}}} > 0$
Spin:	1
Parity:	Even

Massless spectrum

(No particles)

Unitarity conditions

$$\left(t_{\dot{1}} < 0 \ \&\& \left(t_{\dot{2}} < 0 \ \&\& r_{\dot{5}} > 0\right) \parallel \left(t_{\dot{2}} > -t_{\dot{1}} \ \&\& r_{\dot{5}} > 0\right)\right) \parallel \left(t_{\dot{1}} > 0 \ \&\& -t_{\dot{1}} < t_{\dot{2}} < 0 \ \&\& r_{\dot{5}} > 0\right)$$