

PSALTer results panel

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$$\iiint\left(\mathcal{A}^{\alpha\beta\chi}\sigma_{\alpha\beta\chi}+f^{\alpha\beta}\tau_{\left(\Delta+\mathcal{K}\right)_{\alpha\beta}}+\frac{1}{3}r_{\frac{1}{2}}\left(4\partial_{\beta}\mathcal{A}_{\alpha,\theta}-2\partial_{\beta}\mathcal{A}_{\alpha\theta,\textcolor{violet}{1}}+2\partial_{\beta}\mathcal{A}_{,\theta\alpha}-\partial_{\textcolor{violet}{1}}\mathcal{A}_{\alpha\beta\theta}+\partial_{\theta}\mathcal{A}_{\alpha\beta,\textcolor{violet}{1}}-2\partial_{\theta}\mathcal{A}_{\alpha,\beta}\right)\partial^{\theta}\mathcal{A}^{\alpha\beta,\textcolor{violet}{1}}+\frac{1}{2}t_{\frac{1}}{\textcolor{violet}{1}}\left(2\mathcal{A}^{\alpha,\textcolor{violet}{1}}_{\alpha}\mathcal{A}_{,\theta}^{\theta}-4\mathcal{A}_{\alpha\theta}^{\theta}\partial_{\textcolor{violet}{1}}f^{\alpha,\textcolor{violet}{1}}+4\mathcal{A}_{,\theta}^{\theta}\partial_{\textcolor{violet}{1}}f_{\alpha}^{\alpha}-2\partial_{\textcolor{violet}{1}}f_{\theta}^{\theta}\partial_{\textcolor{violet}{1}}f_{\alpha}^{\alpha}-2\partial_{\textcolor{violet}{1}}f^{\alpha,\textcolor{violet}{1}}\partial_{\theta}f_{\alpha}^{\theta}+4\partial_{\textcolor{violet}{1}}f_{\alpha}^{\alpha}\partial_{\theta}f_{,\theta}^{\theta}-2\partial_{\alpha}f_{,\theta}\partial^{\theta}f^{\alpha,\textcolor{violet}{1}}-\partial_{\alpha}f_{\theta,\textcolor{violet}{1}}\partial^{\theta}f^{\alpha,\textcolor{violet}{1}}+\partial_{\textcolor{violet}{1}}f_{\alpha\theta}\partial^{\theta}f^{\alpha,\textcolor{violet}{1}}+\partial_{\theta}f_{\alpha,\textcolor{violet}{1}}\partial^{\theta}f^{\alpha,\textcolor{violet}{1}}+\partial_{\theta}f_{,\alpha}\partial^{\theta}f^{\alpha,\textcolor{violet}{1}}+2\mathcal{A}_{\alpha\theta,\textcolor{violet}{1}}\left(\mathcal{A}^{\alpha,\textcolor{violet}{1}\theta}+2\partial^{\theta}f^{\alpha,\textcolor{violet}{1}}\right)\right)+r_{\frac{1}{5}}\left(\partial_{\textcolor{violet}{1}}\mathcal{A}_{\theta\kappa}^{\kappa}\partial^{\theta}\mathcal{A}^{\alpha,\textcolor{violet}{1}}_{\alpha}-\partial_{\theta}\mathcal{A}_{,\kappa}^{\kappa}\partial^{\theta}\mathcal{A}^{\alpha,\textcolor{violet}{1}}_{\alpha}-\left(\partial_{\alpha}\mathcal{A}^{\alpha,\textcolor{violet}{1}\theta}-2\partial^{\theta}\mathcal{A}^{\alpha,\textcolor{violet}{1}}_{\alpha}\right)\left(\partial_{\kappa}\mathcal{A}_{,\textcolor{violet}{1}}^{\kappa}-\partial_{\kappa}\mathcal{A}_{\theta,\textcolor{violet}{1}}^{\kappa}\right)\right)\Big|t,\textcolor{violet}{1},y,z\Big]dzdydxdt$$

Wave operator

$\overset{0}{\mathcal{A}}^{\parallel}$	$\overset{0}{f}^{\parallel}$	$\overset{0}{f}^{\perp}$	$\overset{0}{\mathcal{A}}^{\parallel}$								
$\overset{0}{\mathcal{A}}^{\parallel}\dagger$	$-\frac{t}{1}$	$i\sqrt{2}kt_{\frac{1}{1}}$	0	0							
$\overset{0}{f}^{\parallel}\dagger$	$-i\sqrt{2}kt_{\frac{1}{1}}$	$-2k^2t_{\frac{1}{1}}$	0	0							
$\overset{0}{f}^{\perp}\dagger$	0	0	0	0							
$\overset{0}{\mathcal{A}}^{\parallel}\dagger$	0	0	0	$k^2r_{\frac{1}{2}}-\frac{t}{1}$	$\overset{1}{\mathcal{A}}^{\parallel}_{\alpha\beta}$	$\overset{1}{\mathcal{A}}^{\perp}_{\alpha\beta}$	$\overset{1}{f}^{\parallel}_{\alpha\beta}$	$\overset{1}{\mathcal{A}}^{\parallel}_{\alpha}$	$\overset{1}{\mathcal{A}}^{\perp}_{\alpha}$	$\overset{1}{f}^{\parallel}_{\alpha}$	$\overset{1}{f}^{\perp}_{\alpha}$
	$\overset{1}{\mathcal{A}}^{\parallel}\dagger^{\alpha\beta}$	$k^2r_{\frac{1}{5}}-\frac{t}{2}-\frac{t_{\frac{1}{1}}}{\sqrt{2}}-\frac{ikt_{\frac{1}{1}}}{\sqrt{2}}$		0	0	0	0				
	$\overset{1}{\mathcal{A}}^{\perp}\dagger^{\alpha\beta}$	$-\frac{t_{\frac{1}{1}}}{\sqrt{2}}$	0	0	0	0	0	0	0		
	$\overset{1}{f}^{\parallel}\dagger^{\alpha\beta}$	$\frac{ikt_{\frac{1}{1}}}{\sqrt{2}}$	0	0	0	0	0	0	0		
	$\overset{1}{\mathcal{A}}^{\parallel}\dagger^{\alpha}$	0	0	0	$k^2r_{\frac{1}{5}}-\frac{t}{2}$	$\frac{t_{\frac{1}{1}}}{\sqrt{2}}$	0	$ikt_{\frac{1}{1}}$			
	$\overset{1}{\mathcal{A}}^{\perp}\dagger^{\alpha}$	0	0	0	$\frac{t_{\frac{1}{1}}}{\sqrt{2}}$	0	0	0			
	$\overset{1}{f}^{\parallel}\dagger^{\alpha}$	0	0	0	0	0	0	0			
	$\overset{1}{f}^{\perp}\dagger^{\alpha}$	0	0	0	$-ikt_{\frac{1}{1}}$	0	0	0			
					$\overset{2}{\mathcal{A}}^{\parallel}_{\alpha\beta}$	$\overset{2}{f}^{\parallel}_{\alpha\beta}$	$\overset{2}{\mathcal{A}}^{\parallel}_{\alpha\beta\chi}$				
	$\overset{2}{\mathcal{A}}^{\parallel}\dagger^{\alpha\beta}$	$\frac{t}{2}-\frac{ikt_{\frac{1}{1}}}{\sqrt{2}}$		0							
	$\overset{2}{f}^{\parallel}\dagger^{\alpha\beta}$	$\frac{ikt_{\frac{1}{1}}}{\sqrt{2}}$	$k^2t_{\frac{1}{1}}$	0							
	$\overset{2}{\mathcal{A}}^{\parallel}\dagger^{\alpha\beta\chi}$	0	0	$\frac{t}{2}$							

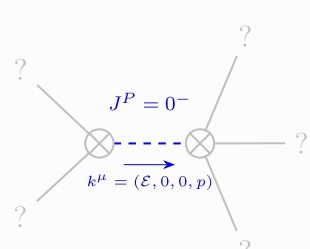
Saturated propagator

$\overset{0}{\sigma}^{\parallel}$	$\overset{0}{\tau}^{\parallel}$	$\overset{0}{\tau}^{\perp}$	$\overset{0}{\sigma}^{\parallel}$									
$\overset{0}{\sigma}^{\parallel} \dagger$	$-\frac{1}{(1+2k^2)^2 t_1}$	$\frac{i\sqrt{2}k}{(1+2k^2)^2 t_1}$	0	0								
$\overset{0}{\tau}^{\parallel} \dagger$	$-\frac{i\sqrt{2}k}{(1+2k^2)^2 t_1}$	$-\frac{2k^2}{(1+2k^2)^2 t_1}$	0	0								
$\overset{0}{\tau}^{\perp} \dagger$	0	0	0	0								
$\overset{0}{\sigma}^{\parallel} \dagger$	0	0	0	$\frac{1}{k^2 r_{\frac{1}{2}} - t_1}$	$\overset{1}{\sigma}^{\parallel}_{\alpha\beta}$	$\overset{1}{\sigma}^{\perp}_{\alpha\beta}$	$\overset{1}{\tau}^{\parallel}_{\alpha\beta}$	$\overset{1}{\sigma}^{\parallel}_{\alpha}$	$\overset{1}{\sigma}^{\perp}_{\alpha}$	$\overset{1}{\tau}^{\parallel}_{\alpha}$	$\overset{1}{\tau}^{\perp}_{\alpha}$	
	$\overset{1}{\sigma}^{\parallel} \dagger^{\alpha\beta}$	0	$-\frac{\sqrt{2}}{t_1 + k^2 t_1}$	$-\frac{i\sqrt{2}k}{t_1 + k^2 t_1}$	0	0	0	0				
	$\overset{1}{\sigma}^{\perp} \dagger^{\alpha\beta}$	$-\frac{\sqrt{2}}{t_1 + k^2 t_1}$	$-\frac{2k^2 r_{\frac{1}{5}} + t_{\frac{1}{1}}}{(1+k^2)^2 t_1^2}$	$-\frac{i(2k^3 r_{\frac{1}{5}} - k t_{\frac{1}{1}})}{(1+k^2)^2 t_1^2}$	0	0	0	0				
	$\overset{1}{\tau}^{\parallel} \dagger^{\alpha\beta}$	$\frac{i\sqrt{2}k}{t_1 + k^2 t_1}$	$\frac{i(2k^3 r_{\frac{1}{5}} - k t_{\frac{1}{1}})}{(1+k^2)^2 t_1^2}$	$-\frac{2k^4 r_{\frac{1}{5}} + k^2 t_{\frac{1}{1}}}{(1+k^2)^2 t_1^2}$	0	0	0	0				
	$\overset{1}{\sigma}^{\parallel} \dagger^{\alpha}$	0	0	0	0	$\frac{\sqrt{2}}{t_1 + 2k^2 t_1}$	0	$\frac{2ik}{t_1 + 2k^2 t_1}$				
	$\overset{1}{\sigma}^{\perp} \dagger^{\alpha}$	0	0	0	$\frac{\sqrt{2}}{t_1 + 2k^2 t_1}$	$\frac{-2k^2 r_{\frac{1}{5}} + t_{\frac{1}{1}}}{(t_1 + 2k^2 t_1)^2}$	0	$-\frac{i\sqrt{2}k(2k^2 r_{\frac{1}{5}} - t_{\frac{1}{1}})}{(t_1 + 2k^2 t_1)^2}$				
	$\overset{1}{\tau}^{\parallel} \dagger^{\alpha}$	0	0	0	0	0	0	0				
	$\overset{1}{\tau}^{\perp} \dagger^{\alpha}$	0	0	0	$-\frac{2ik}{t_1 + 2k^2 t_1}$	$\frac{i\sqrt{2}k(2k^2 r_{\frac{1}{5}} - t_{\frac{1}{1}})}{(t_1 + 2k^2 t_1)^2}$	0	$\frac{-4k^4 r_{\frac{1}{5}} + 2k^2 t_{\frac{1}{1}}}{(t_1 + 2k^2 t_1)^2}$	$\overset{2}{\sigma}^{\parallel}_{\alpha\beta}$	$\overset{2}{\tau}^{\parallel}_{\alpha\beta}$	$\overset{2}{\sigma}^{\parallel}_{\alpha\beta\chi}$	
									$\overset{2}{\sigma}^{\parallel} \dagger^{\alpha\beta}$	$\frac{2}{(1+2k^2)^2 t_1} - \frac{2i\sqrt{2}k}{(1+2k^2)^2 t_1}$	0	
									$\overset{2}{\tau}^{\parallel} \dagger^{\alpha\beta}$	$\frac{2i\sqrt{2}k}{(1+2k^2)^2 t_1}$	$\frac{4k^2}{(1+2k^2)^2 t_1}$	
									$\overset{2}{\sigma}^{\parallel} \dagger^{\alpha\beta\chi}$	0	$\frac{2}{t_1}$	

Source constraints

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

Massive spectrum



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

Massless spectrum

(There are no massless particles)

Gauge symmetries

(Not yet implemented in PSALTer)

Unitarity conditions

$r_{\frac{1}{2}}<0\&\&t_{\frac{1}{\textcolor{violet}{1}}}<0$

Validity assumptions

(Not yet implemented in PSALTer)