PSALTer results panel

$$\mathcal{S} == \int\int\int\int (\frac{1}{6} (2 (t_1 - 2 t_3) \mathcal{A}^{\alpha\iota}{}_{\alpha} \mathcal{A}_{\iota}{}^{\theta}{}_{\theta} + 6 \mathcal{A}^{\alpha\beta\chi} \sigma_{\alpha\beta\chi} + 6 f^{\alpha\beta} \tau(\Delta+\mathcal{K})_{\alpha\beta} - 4 t_1 \mathcal{A}_{\alpha}{}^{\theta}{}_{\theta} \partial_\iota f^{\alpha\iota} + 8 t_3 \mathcal{A}_{\alpha}{}^{\theta}{}_{\theta} \partial_\iota f^{\alpha\iota} + 4 t_1 \mathcal{A}_{\iota}{}^{\theta}{}_{\theta} \partial^\iota f^{\alpha}{}_{\alpha} - 8 t_3 \mathcal{A}_{\iota}{}^{\theta}{}_{\theta} \partial^\iota f^{\alpha}{}_{\alpha} - 2 t_1 \partial_\iota f^{\theta}{}_{\theta} \partial^\iota f^{\alpha}{}_{\alpha} + 4 t_3 \partial_\iota f^{\theta}{}_{\theta} \partial^\iota f^{\alpha}{}_{\alpha} -$$
$$2 t_1 \partial_\iota f^{\alpha\iota} \partial_\theta f_{\alpha}{}^{\theta} + 4 t_3 \partial_\iota f^{\alpha\iota} \partial_\theta f_{\alpha}{}^{\theta} + 4 t_1 \partial^\iota f^{\alpha}{}_{\alpha} \partial_\theta f_{\iota}{}^{\theta} - 8 t_3 \partial^\iota f^{\alpha}{}_{\alpha} \partial_\theta f_{\iota}{}^{\theta} - 8 r_1 \partial_\beta \mathcal{A}_{\alpha\iota\theta} \partial^\theta \mathcal{A}^{\alpha\beta\iota} + 4 r_1 \partial_\beta \mathcal{A}_{\alpha\theta\iota} \partial^\theta \mathcal{A}^{\alpha\beta\iota} - 16 r_1 \partial_\beta \mathcal{A}_{\iota\theta\alpha} \partial^\theta \mathcal{A}^{\alpha\beta\iota} - 4 r_1 \partial_\iota \mathcal{A}_{\alpha\beta\theta} \partial^\theta \mathcal{A}^{\alpha\beta\iota} +$$
$$4 r_1 \partial_\theta \mathcal{A}_{\alpha\beta\iota} \partial^\theta \mathcal{A}^{\alpha\beta\iota} + 4 r_1 \partial_\theta \mathcal{A}_{\alpha\iota\beta} \partial^\theta \mathcal{A}^{\alpha\beta\iota} + 6 r_5 \partial_\iota \mathcal{A}_{\theta}{}^{\kappa}{}_{\kappa} \partial^\theta \mathcal{A}^{\alpha\iota}{}_{\alpha} - 6 r_5 \partial_\theta \mathcal{A}_{\iota}{}^{\kappa}{}_{\kappa} \partial^\theta \mathcal{A}^{\alpha\iota}{}_{\alpha} - 6 t_1 \partial_\alpha f_{\iota\theta} \partial^\theta f^{\alpha\iota} - 3 t_1 \partial_\alpha f_{\theta\iota} \partial^\theta f^{\alpha\iota} + 3 t_1 \partial_\iota f_{\alpha\theta} \partial^\theta f^{\alpha\iota} + 3 t_1 \partial_\theta f_{\alpha\iota} \partial^\theta f^{\alpha\iota} +$$
$$3 t_1 \partial_\theta f_{\iota\alpha} \partial^\theta f^{\alpha\iota} + 6 t_1 \mathcal{A}_{\alpha\theta\iota} (\mathcal{A}^{\alpha\iota\theta} + 2 \partial^\theta f^{\alpha\iota}) - 6 r_5 \partial_\alpha \mathcal{A}^{\alpha\iota\theta} \partial_\kappa \mathcal{A}_{\iota}{}^{\kappa}{}_{\theta} + 12 r_5 \partial^\theta \mathcal{A}^{\alpha\iota}{}_{\alpha} \partial_\kappa \mathcal{A}_{\iota}{}^{\kappa}{}_{\theta} + 6 r_5 \partial_\alpha \mathcal{A}^{\alpha\iota\theta} \partial_\kappa \mathcal{A}_{\theta}{}^{\kappa}{}_{\iota} - 12 r_5 \partial^\theta \mathcal{A}^{\alpha\iota}{}_{\alpha} \partial_\kappa \mathcal{A}_{\theta}{}^{\kappa}{}_{\iota}))[t, x, y, z] dz dy dx dt$$

Wave operator

	$0^+_. \mathcal{A}^{\parallel}$	$0^+_. f^{\parallel}$	$0^+_. f^{\perp}$	$0^-_. \mathcal{A}^{\parallel}$
$0^+_. \mathcal{A}^{\parallel}\dagger$	t_3	$-i\sqrt{2}\, k t_3$	0	0
$0^+_. f^{\parallel}\dagger$	$i\sqrt{2}\, k t_3$	$2k^2 t_3$	0	0
$0^+_. f^{\perp}\dagger$	0	0	0	0
$0^-_. \mathcal{A}^{\parallel}\dagger$	0	0	0	$-t_1$

	$1^+_. \mathcal{A}^{\parallel}_{\alpha\beta}$	$1^+_. \mathcal{A}^{\perp}_{\alpha\beta}$	$1^+_. f^{\parallel}_{\alpha\beta}$	$1^-_. \mathcal{A}^{\parallel}_{\alpha}$	$1^-_. \mathcal{A}^{\perp}_{\alpha}$	$1^-_. f^{\parallel}_{\alpha}$	$1^-_. f^{\perp}_{\alpha}$
$1^+_. \mathcal{A}^{\parallel}\dagger^{\alpha\beta}$	$k^2 (2 r_1 + r_5) - \frac{t_1}{2}$	$-\frac{t_1}{\sqrt{2}}$	$-\frac{i k t_1}{\sqrt{2}}$	0	0	0	0
$1^+_. \mathcal{A}^{\perp}\dagger^{\alpha\beta}$	$-\frac{t_1}{\sqrt{2}}$	0	0	0	0	0	0
$1^+_. f^{\parallel}\dagger^{\alpha\beta}$	$\frac{i k t_1}{\sqrt{2}}$	0	0	0	0	0	0
$1^-_. \mathcal{A}^{\parallel}\dagger^{\alpha}$	0	0	0	$\frac{1}{6}(6 k^2 (r_1 + r_5) + t_1 + 4 t_3)$	$\frac{t_1 - 2 t_3}{3\sqrt{2}}$	0	$\frac{1}{3} i k (t_1 - 2 t_3)$
$1^-_. \mathcal{A}^{\perp}\dagger^{\alpha}$	0	0	0	$\frac{t_1 - 2 t_3}{3\sqrt{2}}$	$\frac{t_1 + t_3}{3}$	0	$\frac{1}{3} i \sqrt{2} k (t_1 + t_3)$
$1^-_. f^{\parallel}\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_. f^{\perp}\dagger^{\alpha}$	0	0	0	$-\frac{1}{3} i k (t_1 - 2 t_3)$	$-\frac{1}{3} i \sqrt{2} k (t_1 + t_3)$	0	$\frac{2}{3} k^2 (t_1 + t_3)$

	$2^+_. \mathcal{A}^{\parallel}_{\alpha\beta}$	$2^+_. f^{\parallel}_{\alpha\beta}$	$2^-_. \mathcal{A}^{\parallel}_{\alpha\beta\chi}$
$2^+_. \mathcal{A}^{\parallel}\dagger^{\alpha\beta}$	$\frac{t_1}{2}$	$-\frac{i k t_1}{\sqrt{2}}$	0
$2^+_. f^{\parallel}\dagger^{\alpha\beta}$	$\frac{i k t_1}{\sqrt{2}}$	$k^2 t_1$	0
$2^-_. \mathcal{A}^{\parallel}\dagger^{\alpha\beta\chi}$	0	0	$k^2 r_1 + \frac{t_1}{2}$

Saturated propagator

	$0^+_. \sigma^{\parallel}$	$0^+_. \tau^{\parallel}$	$0^+_. \tau^{\perp}$	$0^-_. \sigma^{\parallel}$
$0^+_. \sigma^{\parallel}\dagger$	$\frac{1}{(1+2k^2)^2 t_3}$	$-\frac{i\sqrt{2}\, k}{(1+2k^2)^2 t_3}$	0	0
$0^+_. \tau^{\parallel}\dagger$	$\frac{i\sqrt{2}\, k}{(1+2k^2)^2 t_3}$	$\frac{2k^2}{(1+2k^2)^2 t_3}$	0	0
$0^+_. \tau^{\perp}\dagger$	0	0	0	0
$0^-_. \sigma^{\parallel}\dagger$	0	0	0	$-\frac{1}{t_1}$

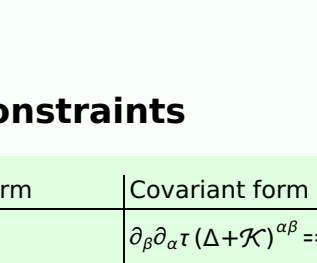
	$1^+_. \sigma^{\parallel}_{\alpha\beta}$	$1^+_. \sigma^{\perp}_{\alpha\beta}$	$1^+_. \tau^{\parallel}_{\alpha\beta}$	$1^-_. \sigma^{\parallel}_{\alpha}$	$1^-_. \sigma^{\perp}_{\alpha}$	$1^-_. \tau^{\parallel}_{\alpha}$	$1^-_. \tau^{\perp}_{\alpha}$
$1^+_. \sigma^{\parallel}\dagger^{\alpha\beta}$	0	$-\frac{\sqrt{2}}{t_1 + k^2 t_1}$	$-\frac{i\sqrt{2}\, k}{t_1 + k^2 t_1}$	0	0	0	0
$1^+_. \sigma^{\perp}\dagger^{\alpha\beta}$	$-\frac{\sqrt{2}}{t_1 + k^2 t_1}$	$\frac{-2k^2 (2 r_1 + r_5) + t_1}{(1+k^2)^2 t_1^2}$	$\frac{-2 i k^3 (2 r_1 + r_5) + i k t_1}{(1+k^2)^2 t_1^2}$	0	0	0	0
$1^+_. \tau^{\parallel}\dagger^{\alpha\beta}$	$\frac{i\sqrt{2}\, k}{t_1 + k^2 t_1}$	$\frac{i (2 k^3 (2 r_1 + r_5) - k t_1)}{(1+k^2)^2 t_1^2}$	$\frac{-2 k^4 (2 r_1 + r_5) + k^2 t_1}{(1+k^2)^2 t_1^2}$	0	0	0	0
$1^-_. \sigma^{\parallel}\dagger^{\alpha}$	0	0	0	$\frac{2 (t_1 + t_3)}{3 t_1 t_3 + 2 k^2 (r_1 + r_5)(t_1 + t_3)}$	$-\frac{\sqrt{2}\, (t_1 - 2 t_3)}{(1+2k^2)(3 t_1 t_3 + 2 k^2 (r_1 + r_5)(t_1 + t_3))}$	0	$-\frac{2 i k (t_1 - 2 t_3)}{(1+2k^2)(3 t_1 t_3 + 2 k^2 (r_1 + r_5)(t_1 + t_3))}$
$1^-_. \sigma^{\perp}\dagger^{\alpha}$	0	0	0	$-\frac{\sqrt{2}\, (t_1 - 2 t_3)}{(1+2k^2)(3 t_1 t_3 + 2 k^2 (r_1 + r_5)(t_1 + t_3))}$	$\frac{6 k^2 (r_1 + r_5) + t_1 + 4 t_3}{(1+2k^2)^2 (3 t_1 t_3 + 2 k^2 (r_1 + r_5)(t_1 + t_3))}$	0	$\frac{i\sqrt{2}\, k (6 k^2 (r_1 + r_5) + t_1 + 4 t_3)}{(1+2k^2)^2 (3 t_1 t_3 + 2 k^2 (r_1 + r_5)(t_1 + t_3))}$
$1^-_. \tau^{\parallel}\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_. \tau^{\perp}\dagger^{\alpha}$	0	0	0	$\frac{2 i k (t_1 - 2 t_3)}{(1+2k^2)(3 t_1 t_3 + 2 k^2 (r_1 + r_5)(t_1 + t_3))}$	$-\frac{i\sqrt{2}\, k (6 k^2 (r_1 + r_5) + t_1 + 4 t_3)}{(1+2k^2)^2 (3 t_1 t_3 + 2 k^2 (r_1 + r_5)(t_1 + t_3))}$	0	$\frac{2 k^2 (6 k^2 (r_1 + r_5) + t_1 + 4 t_3)}{(1+2k^2)^2 (3 t_1 t_3 + 2 k^2 (r_1 + r_5)(t_1 + t_3))}$

	$2^+_. \sigma^{\parallel}_{\alpha\beta}$	$2^+_. \tau^{\parallel}_{\alpha\beta}$	$2^-_. \sigma^{\parallel}_{\alpha\beta\chi}$
$2^+_. \sigma^{\parallel}\dagger^{\alpha\beta}$	$\frac{2}{(1+2k^2)^2 t_1}$	$-\frac{2 i \sqrt{2}\, k}{(1+2k^2)^2 t_1}$	0
$2^+_. \tau^{\parallel}\dagger^{\alpha\beta}$	$\frac{2 i \sqrt{2}\, k}{(1+2k^2)^2 t_1}$	$\frac{4k^2}{(1+2k^2)^2 t_1}$	0
$2^-_. \sigma^{\parallel}\dagger^{\alpha\beta\chi}$	0	0	$\frac{2}{2 k^2 r_1 + t_1}$

Source constraints

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

Massive spectrum



Massive particle

Pole residue:	$-\frac{3 (-2 t_1 t_3 (t_1 + t_3) + r_1 (t_1^2 + 2 t_3^2) + r_5 (t_1^2 + 2 t_3^2))}{2 (r_1 + r_5)(t_1 + t_3)(-3 t_1 t_3 + r_1 (t_1 + t_3) + r_5 (t_1 + t_3))} > 0$
Square mass:	$-\frac{3 t_1 t_3}{2 (r_1 + r_5)(t_1 + t_3)} > 0$
Spin:	1
Parity:	Odd

Massive particle

Pole residue:	$-\frac{1}{r_1} > 0$
Square mass:	$-\frac{t_1}{2 r_1} > 0$
Spin:	2
Parity:	Odd

Massless spectrum

(No particles)

Unitarity conditions

$r_1 < 0 \;\&\&\; ((t_3 < 0 \;\&\&\; 0 < t_1 < -t_3 \;\&\&\; r_5 < -r_1) \;||\; (t_3 > 0 \;\&\&\; t_1 > 0 \;\&\&\; r_5 < -r_1))$