PSALTer results panel

$$\mathcal{S} == \iiiint \Big(\tfrac{1}{6}\big(6 t_1\, \mathcal{A}^{\alpha\iota}{}_{\alpha}\, \mathcal{A}_{\iota}{}^{\theta}{}_{\theta} + 6\, \mathcal{A}^{\alpha\beta\chi}\, \sigma_{\alpha\beta\chi} + 6\, f^{\alpha\beta}\, \tau(\Delta{+}\mathcal{K})_{\alpha\beta} - 12 t_1\, \mathcal{A}_{\alpha}{}^{\theta}{}_{\theta}\, \partial_{\iota} f^{\alpha\iota} + 12 t_1\, \mathcal{A}_{\iota}{}^{\theta}{}_{\theta}\, \partial^{\iota} f^{\alpha}{}_{\alpha} - 6 t_1\, \partial_{\iota} f^{\theta}{}_{\theta} \partial^{\iota} f^{\alpha}{}_{\alpha} - 6 t_1\, \partial_{\iota} f^{\alpha\iota} \partial_{\theta} f_{\alpha}{}^{\theta} + 12 t_1\, \partial^{\iota} f^{\alpha}{}_{\alpha} \partial_{\theta} f_{\iota}{}^{\theta} +$$
$$6 r_5\, \partial_{\iota} \mathcal{A}_{\theta}{}^{\kappa}{}_{\kappa} \partial^{\theta} \mathcal{A}^{\alpha\iota}{}_{\alpha} - 6 r_5\, \partial_{\theta} \mathcal{A}_{\iota}{}^{\kappa}{}_{\kappa} \partial^{\theta} \mathcal{A}^{\alpha\iota}{}_{\alpha} + 4 t_1\, \mathcal{A}_{\iota\theta\alpha}\, \partial^{\theta} f^{\alpha\iota} + 4 t_2\, \mathcal{A}_{\iota\theta\alpha}\, \partial^{\theta} f^{\alpha\iota} - 4 t_1\, \partial_{\alpha} f_{\iota\theta} \partial^{\theta} f^{\alpha\iota} + 2 t_2\, \partial_{\alpha} f_{\iota\theta} \partial^{\theta} f^{\alpha\iota} - 4 t_1\, \partial_{\alpha} f_{\theta\iota} \partial^{\theta} f^{\alpha\iota} - t_2\, \partial_{\alpha} f_{\theta\iota} \partial^{\theta} f^{\alpha\iota} +$$
$$2 t_1\, \partial_{\iota} f_{\alpha\theta} \partial^{\theta} f^{\alpha\iota} - t_2\, \partial_{\iota} f_{\alpha\theta} \partial^{\theta} f^{\alpha\iota} + 4 t_1\, \partial_{\theta} f_{\alpha\iota} \partial^{\theta} f^{\alpha\iota} + t_2\, \partial_{\theta} f_{\alpha\iota} \partial^{\theta} f^{\alpha\iota} + 2 t_1\, \partial_{\theta} f_{\iota\alpha} \partial^{\theta} f^{\alpha\iota} - t_2\, \partial_{\theta} f_{\iota\alpha} \partial^{\theta} f^{\alpha\iota} + 2 (t_1 + t_2)\, \mathcal{A}_{\alpha\iota\theta}\, (\mathcal{A}^{\alpha\iota\theta} + 2 \partial^{\theta} f^{\alpha\iota}) +$$
$$2\, \mathcal{A}_{\alpha\theta\iota}\, ((t_1 - 2 t_2)\, \mathcal{A}^{\alpha\iota\theta} + 2 (2 t_1 - t_2) \partial^{\theta} f^{\alpha\iota}) - 6 r_5\, \partial_{\alpha} \mathcal{A}^{\alpha\iota\theta} \partial_{\kappa} \mathcal{A}_{\iota}{}^{\kappa}{}_{\theta} + 12 r_5\, \partial^{\theta} \mathcal{A}^{\alpha\iota}{}_{\alpha} \partial_{\kappa} \mathcal{A}_{\iota}{}^{\kappa}{}_{\theta} + 6 r_5\, \partial_{\alpha} \mathcal{A}^{\alpha\iota\theta} \partial_{\kappa} \mathcal{A}_{\theta}{}^{\kappa}{}_{\iota} - 12 r_5\, \partial^{\theta} \mathcal{A}^{\alpha\iota}{}_{\alpha} \partial_{\kappa} \mathcal{A}_{\theta}{}^{\kappa}{}_{\iota}\big)\Big)[t, x, y, z]\, dz\, dy\, dx\, dt$$

Wave operator

	${}^{0^+}\mathcal{A}^{\parallel}$	${}^{0^+}f^{\parallel}$	${}^{0^+}f^{\perp}$	${}^{0^-}\mathcal{A}^{\parallel}$
${}^{0^+}\mathcal{A}^{\parallel}\,\dagger$	$-t_1$	$i\sqrt{2}\,k t_1$	0	0
${}^{0^+}f^{\parallel}\,\dagger$	$-i\sqrt{2}\,k t_1$	$-2k^2 t_1$	0	0
${}^{0^+}f^{\perp}\,\dagger$	0	0	0	0
${}^{0^-}\mathcal{A}^{\parallel}\,\dagger$	0	0	0	t_2

	${}^{1^+}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	${}^{1^+}\mathcal{A}^{\perp}{}_{\alpha\beta}$	${}^{1^+}f^{\parallel}{}_{\alpha\beta}$	${}^{1^-}\mathcal{A}^{\parallel}{}_{\alpha}$	${}^{1^-}\mathcal{A}^{\perp}{}_{\alpha}$	${}^{1^-}f^{\parallel}{}_{\alpha}$	${}^{1^-}f^{\perp}{}_{\alpha}$
${}^{1^+}\mathcal{A}^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{1}{6}(6k^2 r_5 + t_1 + 4t_2)$	$-\frac{t_1-2t_2}{3\sqrt{2}}$	$-\frac{i k (t_1-2t_2)}{3\sqrt{2}}$	0	0	0	0
${}^{1^+}\mathcal{A}^{\perp}\,\dagger^{\alpha\beta}$	$-\frac{t_1-2t_2}{3\sqrt{2}}$	$\frac{t_1+t_2}{3}$	$\frac{1}{3} i k (t_1+t_2)$	0	0	0	0
${}^{1^+}f^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{i k (t_1-2t_2)}{3\sqrt{2}}$	$-\frac{1}{3} i k (t_1+t_2)$	$\frac{1}{3} k^2 (t_1+t_2)$	0	0	0	0
${}^{1^-}\mathcal{A}^{\parallel}\,\dagger^{\alpha}$	0	0	0	$k^2 r_5 - \frac{t_1}{2}$	$\frac{t_1}{\sqrt{2}}$	0	$i k t_1$
${}^{1^-}\mathcal{A}^{\perp}\,\dagger^{\alpha}$	0	0	0	$\frac{t_1}{\sqrt{2}}$	0	0	0
${}^{1^-}f^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
${}^{1^-}f^{\perp}\,\dagger^{\alpha}$	0	0	0	$-i k t_1$	0	0	0

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

Saturated propagator

	${}^{0^+}\sigma^{\parallel}$	${}^{0^+}\tau^{\parallel}$	${}^{0^+}\tau^{\perp}$	${}^{0^-}\sigma^{\parallel}$
${}^{0^+}\sigma^{\parallel}\,\dagger$	$-\frac{1}{(1+2k^2)^2 t_1}$	$\frac{i\sqrt{2}\,k}{(1+2k^2)^2 t_1}$	0	0
${}^{0^+}\tau^{\parallel}\,\dagger$	$-\frac{i\sqrt{2}\,k}{(1+2k^2)^2 t_1}$	$-\frac{2k^2}{(1+2k^2)^2 t_1}$	0	0
${}^{0^+}\tau^{\perp}\,\dagger$	0	0	0	0
${}^{0^-}\sigma^{\parallel}\,\dagger$	0	0	0	$\frac{1}{t_2}$

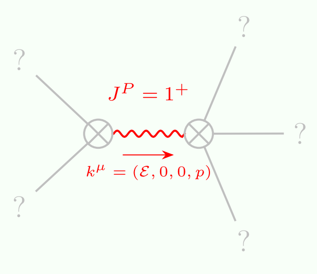
	${}^{1^+}\sigma^{\parallel}{}_{\alpha\beta}$	${}^{1^+}\sigma^{\perp}{}_{\alpha\beta}$	${}^{1^+}\tau^{\parallel}{}_{\alpha\beta}$	${}^{1^-}\sigma^{\parallel}{}_{\alpha}$	${}^{1^-}\sigma^{\perp}{}_{\alpha}$	${}^{1^-}\tau^{\parallel}{}_{\alpha}$	${}^{1^-}\tau^{\perp}{}_{\alpha}$
${}^{1^+}\sigma^{\parallel}\,\dagger^{\alpha\beta}$	$\frac{2(t_1+t_2)}{3t_1t_2+2k^2 r_5(t_1+t_2)}$	$\frac{\sqrt{2}(t_1-2t_2)}{(1+k^2)(3t_1t_2+2k^2 r_5(t_1+t_2))}$	$\frac{i\sqrt{2}\,k(t_1-2t_2)}{(1+k^2)(3t_1t_2+2k^2 r_5(t_1+t_2))}$	0	0	0	0
${}^{1^+}\sigma^{\perp}\,\dagger^{\alpha\beta}$	$\frac{\sqrt{2}(t_1-2t_2)}{(1+k^2)(3t_1t_2+2k^2 r_5(t_1+t_2))}$	$\frac{6k^2 r_5+t_1+4t_2}{(1+k^2)^2(3t_1t_2+2k^2 r_5(t_1+t_2))}$	$\frac{i k(6k^2 r_5+t_1+4t_2)}{(1+k^2)^2(3t_1t_2+2k^2 r_5(t_1+t_2))}$	0	0	0	0
${}^{1^+}\tau^{\parallel}\,\dagger^{\alpha\beta}$	$-\frac{i\sqrt{2}\,k(t_1-2t_2)}{(1+k^2)(3t_1t_2+2k^2 r_5(t_1+t_2))}$	$-\frac{i k(6k^2 r_5+t_1+4t_2)}{(1+k^2)^2(3t_1t_2+2k^2 r_5(t_1+t_2))}$	$\frac{k^2(6k^2 r_5+t_1+4t_2)}{(1+k^2)^2(3t_1t_2+2k^2 r_5(t_1+t_2))}$	0	0	0	0
${}^{1^-}\sigma^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	$\frac{\sqrt{2}}{t_1+2k^2 t_1}$	0	$\frac{2ik}{t_1+2k^2 t_1}$
${}^{1^-}\sigma^{\perp}\,\dagger^{\alpha}$	0	0	0	$\frac{\sqrt{2}}{t_1+2k^2 t_1}$	$\frac{-2k^2 r_5+t_1}{(t_1+2k^2 t_1)^2}$	0	$-\frac{i\sqrt{2}\,k(2k^2 r_5-t_1)}{(t_1+2k^2 t_1)^2}$
${}^{1^-}\tau^{\parallel}\,\dagger^{\alpha}$	0	0	0	0	0	0	0
${}^{1^-}\tau^{\perp}\,\dagger^{\alpha}$	0	0	0	$-\frac{2ik}{t_1+2k^2 t_1}$	$\frac{i\sqrt{2}\,k(2k^2 r_5-t_1)}{(t_1+2k^2 t_1)^2}$	0	$\frac{-4k^4 r_5+2k^2 t_1}{(t_1+2k^2 t_1)^2}$

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

Source constraints

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

Massive spectrum



Massive particle

Pole residue:	$\frac{-3t_1t_2(t_1+t_2)+3r_5(t_1^2+2t_2^2)}{r_5(t_1+t_2)(-3t_1t_2+2r_5(t_1+t_2))} > 0$
Square mass:	$-\frac{3t_1t_2}{2r_5t_1+2r_5t_2} > 0$
Spin:	1
Parity:	Even

Massless spectrum

(No particles)

Unitarity conditions

$(t_1 < 0\ \&\&\ ((t_2 < 0\ \&\&\ r_5 > 0)\ \|\ (t_2 > -t_1\ \&\&\ r_5 > 0)))\ \|\ (t_1 > 0\ \&\&\ -t_1 < t_2 < 0\ \&\&\ r_5 > 0)$