PSALTer results panel

$$\mathcal{S} == \int\int\int\int (\mathcal{A}^{\alpha\beta\chi}\ \sigma_{\alpha\beta\chi} + f^{\alpha\beta}\ \tau(\Delta+\mathcal{K})_{\alpha\beta} - 2\, r_3 (\partial_\beta \mathcal{A}_\iota{}^\theta{}_\theta \partial^\iota \mathcal{A}^{\alpha\beta}{}_\alpha + \partial_\iota \mathcal{A}_\beta{}^\theta{}_\theta \partial^\iota \mathcal{A}^{\alpha\beta}{}_\alpha + \partial_\alpha \mathcal{A}^{\alpha\beta\iota} \partial_\theta \mathcal{A}_\beta{}^\theta{}_\iota - 2\, \partial^\iota \mathcal{A}^{\alpha\beta}{}_\alpha \partial_\theta \mathcal{A}_\beta{}^\theta{}_\iota + \partial_\alpha \mathcal{A}^{\alpha\beta\iota} \partial_\theta \mathcal{A}_\iota{}^\theta{}_\beta - 2\, \partial^\iota \mathcal{A}^{\alpha\beta}{}_\alpha \partial_\theta \mathcal{A}_\iota{}^\theta{}_\beta + 2\, \partial_\beta \mathcal{A}_{\iota\theta\alpha} \partial^\theta \mathcal{A}^{\alpha\beta\iota}) + \frac{2}{3} r_1 (3\, \partial_\beta \mathcal{A}_\iota{}^\theta{}_\theta \partial^\iota \mathcal{A}^{\alpha\beta}{}_\alpha + 3\, \partial_\iota \mathcal{A}_\beta{}^\theta{}_\theta \partial^\iota \mathcal{A}^{\alpha\beta}{}_\alpha + 3\, \partial_\alpha \mathcal{A}^{\alpha\beta\iota} \partial_\theta \mathcal{A}_\beta{}^\theta{}_\iota - 6\, \partial^\iota \mathcal{A}^{\alpha\beta}{}_\alpha \partial_\theta \mathcal{A}_\beta{}^\theta{}_\iota + 3\, \partial_\alpha \mathcal{A}^{\alpha\beta\iota} \partial_\theta \mathcal{A}_\iota{}^\theta{}_\beta - 6\, \partial^\iota \mathcal{A}^{\alpha\beta}{}_\alpha \partial_\theta \mathcal{A}_\iota{}^\theta{}_\beta - 2\, \partial_\beta \mathcal{A}_{\alpha\iota\theta} \partial^\theta \mathcal{A}^{\alpha\beta\iota} + \partial_\beta \mathcal{A}_{\alpha\theta\iota} \partial^\theta \mathcal{A}^{\alpha\beta\iota} + 2\, \partial_\beta \mathcal{A}_{\iota\theta\alpha} \partial^\theta \mathcal{A}^{\alpha\beta\iota} - \partial_\iota \mathcal{A}_{\alpha\beta\theta} \partial^\theta \mathcal{A}^{\alpha\beta\iota} + \partial_\theta \mathcal{A}_{\alpha\beta\iota} \partial^\theta \mathcal{A}^{\alpha\beta\iota} + \partial_\theta \mathcal{A}_{\alpha\iota\beta} \partial^\theta \mathcal{A}^{\alpha\beta\iota}) + \frac{1}{6} t_1 (2\, \mathcal{A}^{\alpha\iota}{}_\alpha\ \mathcal{A}_\iota{}^\theta{}_\theta - 4\, \mathcal{A}_\alpha{}^\theta{}_\theta\ \partial_\iota f^{\alpha\iota} + 4\, \mathcal{A}_\iota{}^\theta{}_\theta\ \partial^\iota f^\alpha{}_\alpha - 2\, \partial_\iota f^\theta{}_\theta \partial^\iota f^\alpha{}_\alpha - 2\, \partial_\iota f^{\alpha\iota} \partial_\theta f_\alpha{}^\theta + 4\, \partial^\iota f^\alpha{}_\alpha \partial_\theta f_\iota{}^\theta - 6\, \partial_\alpha f_{\iota\theta} \partial^\theta f^{\alpha\iota} - 3\, \partial_\alpha f_{\theta\iota} \partial^\theta f^{\alpha\iota} + 3\, \partial_\iota f_{\alpha\theta} \partial^\theta f^{\alpha\iota} + 3\, \partial_\theta f_{\alpha\iota} \partial^\theta f^{\alpha\iota} + 3\, \partial_\theta f_{\iota\alpha} \partial^\theta f^{\alpha\iota} + 6\, \mathcal{A}_{\alpha\theta\iota}\ (\mathcal{A}^{\alpha\iota\theta} + 2\, \partial^\theta f^{\alpha\iota})) + r_5 (\partial_\iota \mathcal{A}_\theta{}^\kappa{}_\kappa \partial^\theta \mathcal{A}^{\alpha\iota}{}_\alpha - \partial_\theta \mathcal{A}_\iota{}^\kappa{}_\kappa \partial^\theta \mathcal{A}^{\alpha\iota}{}_\alpha - (\partial_\alpha \mathcal{A}^{\alpha\iota\theta} - 2\, \partial^\theta \mathcal{A}^{\alpha\iota}{}_\alpha)(\partial_\kappa \mathcal{A}_\iota{}^\kappa{}_\theta - \partial_\kappa \mathcal{A}_\theta{}^\kappa{}_\iota)))[t, x, y, z]\, dz\, dy\, dx\, dt$$

Wave operator

	${}^{0^+}_{\cdot}\mathcal{A}^{\parallel}$	${}^{0^+}_{\cdot}f^{\parallel}$	${}^{0^+}_{\cdot}f^{\perp}$	${}^{0^-}_{\cdot}\mathcal{A}^{\parallel}$
${}^{0^+}_{\cdot}\mathcal{A}^{\parallel}\dagger$	$6k^2(-r_1+r_3)$	0	0	0
${}^{0^+}_{\cdot}f^{\parallel}\dagger$	0	0	0	0
${}^{0^+}_{\cdot}f^{\perp}\dagger$	0	0	0	0
${}^{0^-}_{\cdot}\mathcal{A}^{\parallel}\dagger$	0	0	0	$-t_1$

	${}^{1^+}_{\cdot}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	${}^{1^+}_{\cdot}\mathcal{A}^{\perp}{}_{\alpha\beta}$	${}^{1^+}_{\cdot}f^{\parallel}{}_{\alpha\beta}$	${}^{1^-}_{\cdot}\mathcal{A}^{\parallel}{}_{\alpha}$	${}^{1^-}_{\cdot}\mathcal{A}^{\perp}{}_{\alpha}$	${}^{1^-}_{\cdot}f^{\parallel}{}_{\alpha}$	${}^{1^-}_{\cdot}f^{\perp}{}_{\alpha}$
${}^{1^+}_{\cdot}\mathcal{A}^{\parallel}\dagger^{\alpha\beta}$	$k^2(2r_3+r_5) - \frac{t_1}{2}$	$-\frac{t_1}{\sqrt{2}}$	$-\frac{ikt_1}{\sqrt{2}}$	0	0	0	0
${}^{1^+}_{\cdot}\mathcal{A}^{\perp}\dagger^{\alpha\beta}$	$-\frac{t_1}{\sqrt{2}}$	0	0	0	0	0	0
${}^{1^+}_{\cdot}f^{\parallel}\dagger^{\alpha\beta}$	$\frac{ikt_1}{\sqrt{2}}$	0	0	0	0	0	0
${}^{1^-}_{\cdot}\mathcal{A}^{\parallel}\dagger^{\alpha}$	0	0	0	$k^2(-r_1+2r_3+r_5) + \frac{t_1}{6}$	$\frac{t_1}{3\sqrt{2}}$	0	$\frac{ikt_1}{3}$
${}^{1^-}_{\cdot}\mathcal{A}^{\perp}\dagger^{\alpha}$	0	0	0	$\frac{t_1}{3\sqrt{2}}$	$\frac{t_1}{3}$	0	$\frac{1}{3} i \sqrt{2}\, kt_1$
${}^{1^-}_{\cdot}f^{\parallel}\dagger^{\alpha}$	0	0	0	0	0	0	0
${}^{1^-}_{\cdot}f^{\perp}\dagger^{\alpha}$	0	0	0	$-\frac{1}{3} ikt_1$	$-\frac{1}{3} i \sqrt{2}\, kt_1$	0	$\frac{2k^2 t_1}{3}$

	${}^{2^+}_{\cdot}\mathcal{A}^{\parallel}{}_{\alpha\beta}$	${}^{2^+}_{\cdot}f^{\parallel}{}_{\alpha\beta}$	${}^{2^-}_{\cdot}\mathcal{A}^{\parallel}{}_{\alpha\beta\chi}$
${}^{2^+}_{\cdot}\mathcal{A}^{\parallel}\dagger^{\alpha\beta}$	$\frac{t_1}{2}$	$-\frac{ikt_1}{\sqrt{2}}$	0
${}^{2^+}_{\cdot}f^{\parallel}\dagger^{\alpha\beta}$	$\frac{ikt_1}{\sqrt{2}}$	$k^2 t_1$	0
${}^{2^-}_{\cdot}\mathcal{A}^{\parallel}\dagger^{\alpha\beta\chi}$	0	0	$k^2 r_1 + \frac{t_1}{2}$

Saturated propagator

	${}^{0^+}_{\cdot}\sigma^{\parallel}$	${}^{0^+}_{\cdot}\tau^{\parallel}$	${}^{0^+}_{\cdot}\tau^{\perp}$	${}^{0^-}_{\cdot}\sigma^{\parallel}$
${}^{0^+}_{\cdot}\sigma^{\parallel}\dagger$	$\frac{1}{6k^2(-r_1+r_3)}$	0	0	0
${}^{0^+}_{\cdot}\tau^{\parallel}\dagger$	0	0	0	0
${}^{0^+}_{\cdot}\tau^{\perp}\dagger$	0	0	0	0
${}^{0^-}_{\cdot}\sigma^{\parallel}\dagger$	0	0	0	$-\frac{1}{t_1}$

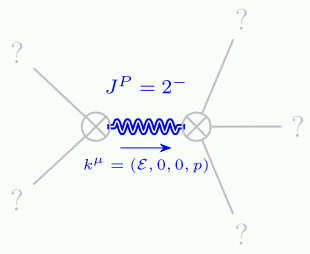
	${}^{1^+}_{\cdot}\sigma^{\parallel}{}_{\alpha\beta}$	${}^{1^+}_{\cdot}\sigma^{\perp}{}_{\alpha\beta}$	${}^{1^+}_{\cdot}\tau^{\parallel}{}_{\alpha\beta}$	${}^{1^-}_{\cdot}\sigma^{\parallel}{}_{\alpha}$	${}^{1^-}_{\cdot}\sigma^{\perp}{}_{\alpha}$	${}^{1^-}_{\cdot}\tau^{\parallel}{}_{\alpha}$	${}^{1^-}_{\cdot}\tau^{\perp}{}_{\alpha}$
${}^{1^+}_{\cdot}\sigma^{\parallel}\dagger^{\alpha\beta}$	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
${}^{1^+}_{\cdot}\sigma^{\perp}\dagger^{\alpha\beta}$	$-\frac{\sqrt{2}}{t_1+k^2 t_1}$	$\frac{-2k^2(2r_3+r_5)+t_1}{(1+k^2)^2 t_1^2}$	$\frac{-2ik^3(2r_3+r_5)+ikt_1}{(1+k^2)^2 t_1^2}$	0	0	0	0
${}^{1^+}_{\cdot}\tau^{\parallel}\dagger^{\alpha\beta}$	$\frac{i\sqrt{2}\,k}{t_1+k^2 t_1}$	$\frac{i(2k^3(2r_3+r_5)-kt_1)}{(1+k^2)^2 t_1^2}$	$\frac{-2k^4(2r_3+r_5)+k^2 t_1}{(1+k^2)^2 t_1^2}$	0	0	0	0
${}^{1^-}_{\cdot}\sigma^{\parallel}\dagger^{\alpha}$	0	0	0	$\frac{1}{k^2(-r_1+2r_3+r_5)}$	$\frac{1}{\sqrt{2}(k^2+2k^4)(r_1-2r_3-r_5)}$	0	$\frac{i}{k(1+2k^2)(r_1-2r_3-r_5)}$
${}^{1^-}_{\cdot}\sigma^{\perp}\dagger^{\alpha}$	0	0	0	$\frac{1}{\sqrt{2}(k^2+2k^4)(r_1-2r_3-r_5)}$	$\frac{\frac{1}{-r_1+2r_3+r_5}+\frac{6k^2}{t_1}}{2(k+2k^3)^2}$	0	$\frac{i(6k^2(r_1-2r_3-r_5)-t_1)}{\sqrt{2}\,k(1+2k^2)^2(r_1-2r_3-r_5)t_1}$
${}^{1^-}_{\cdot}\tau^{\parallel}\dagger^{\alpha}$	0	0	0	0	0	0	0
${}^{1^-}_{\cdot}\tau^{\perp}\dagger^{\alpha}$	0	0	0	$\frac{i}{k(1+2k^2)(-r_1+2r_3+r_5)}$	$-\frac{i(6k^2(r_1-2r_3-r_5)-t_1)}{\sqrt{2}\,k(1+2k^2)^2(r_1-2r_3-r_5)t_1}$	0	$\frac{\frac{1}{-r_1+2r_3+r_5}+\frac{6k^2}{t_1}}{(1+2k^2)^2}$

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

Source constraints

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

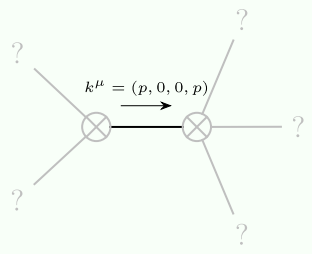
Massive spectrum



Massive particle

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

Massless spectrum



Massless particle

Pole residue:	$\frac{7}{r_1-2r_3-r_5} + \frac{-2t_1 p^2 + 4(r_1-2r_3-r_5)p^4}{t_1^2} > 0$
Polarisations:	2

Unitarity conditions

$$r_3 \in \mathbb{R}\ \&\&\ r_5 < -2r_3\ \&\&\ 2r_3 + r_5 < r_1 < 0\ \&\&\ t_1 > 0$$