PSALTer results panel

$$\mathcal{S} == \iiint\!\!\int (-\tfrac{1}{2}(\alpha_0 - 4\beta_1)\,\mathcal{A}^{\alpha\beta}{}_{\alpha}\,\mathcal{A}_{\beta}{}^{\chi}{}_{\chi} + \mathcal{A}^{\alpha\beta\chi}\,\sigma_{\alpha\beta\chi} + f^{\alpha\beta}\,\tau(\Delta+\mathcal{K})_{\alpha\beta} - \alpha_0\, f^{\alpha\beta}\,\partial_\beta \mathcal{A}_{\alpha}{}^{\chi}{}_{\chi} + \alpha_0\,\partial_\beta \mathcal{A}^{\alpha\beta}{}_{\alpha} - 4\beta_1\,\mathcal{A}_{\alpha}{}^{\chi}{}_{\chi}\,\partial_\beta f^{\alpha\beta} + 4\beta_1\,\mathcal{A}_{\beta}{}^{\chi}{}_{\chi}\,\partial^\beta f^{\alpha}{}_{\alpha} - 2\beta_1\,\partial_\beta f^{\chi}{}_{\chi}\,\partial^\beta f^{\alpha}{}_{\alpha} + \alpha_0\, f^{\alpha\beta}\,\partial_\chi \mathcal{A}_{\alpha}{}^{\chi}{}_{\beta} - \alpha_0\, f^{\alpha}{}_{\alpha}\,\partial_\chi \mathcal{A}^{\beta\chi}{}_{\beta} - 2\beta_1\,\partial_\beta f^{\alpha\beta}\,\partial_\chi f_{\alpha}{}^{\chi} + 4\beta_1\,\partial^\beta f^{\alpha}{}_{\alpha}\,\partial_\chi f_{\beta}{}^{\chi} - 2\beta_1\,\partial_\alpha f_{\beta\chi}\,\partial^\chi f^{\alpha\beta} - \beta_1\,\partial_\alpha f_{\chi\beta}\,\partial^\chi f^{\alpha\beta} + \beta_1\,\partial_\beta f_{\alpha\chi}\,\partial^\chi f^{\alpha\beta} + \beta_1\,\partial_\chi f_{\alpha\beta}\,\partial^\chi f^{\alpha\beta} + \beta_1\,\partial_\chi f_{\beta\alpha}\,\partial^\chi f^{\alpha\beta} - \tfrac{1}{2}\,\mathcal{A}_{\alpha\chi\beta}\,((\alpha_0 - 4\beta_1)\,\mathcal{A}^{\alpha\beta\chi} - 8\beta_1\,\partial^\chi f^{\alpha\beta}) + \tfrac{2}{3}\,\alpha_6\,\partial_\beta \mathcal{A}^{\alpha\beta}{}_{\alpha}\,\partial_\delta \mathcal{A}^{\chi\delta}{}_{\chi})[t, x, y, z]\,dz\,dy\,dx\,dt$$

Wave operator

	$0^+_\cdot\mathcal{A}^\parallel$	$0^+_\cdot f^\parallel$	$0^+_\cdot f^\perp$	$0^-_\cdot\mathcal{A}^\parallel$
$0^+_\cdot\mathcal{A}^\parallel\,\dagger$	$\frac{\alpha_0}{2} - 2\beta_1 + \alpha_6 k^2$	$-\frac{i(\alpha_0 - 4\beta_1)k}{\sqrt{2}}$	0	0
$0^+_\cdot f^\parallel\,\dagger$	$\frac{i(\alpha_0 - 4\beta_1)k}{\sqrt{2}}$	$-4\beta_1 k^2$	0	0
$0^+_\cdot f^\perp\,\dagger$	0	0	0	0
$0^-_\cdot\mathcal{A}^\parallel\,\dagger$	0	0	0	$\frac{1}{2}(\alpha_0 - 4\beta_1)$

	$1^+_\cdot\mathcal{A}^\parallel{}_{\alpha\beta}$	$1^+_\cdot\mathcal{A}^\perp{}_{\alpha\beta}$	$1^+_\cdot f^\parallel{}_{\alpha\beta}$	$1^-_\cdot\mathcal{A}^\parallel{}_{\alpha}$	$1^-_\cdot\mathcal{A}^\perp{}_{\alpha}$	$1^-_\cdot f^\parallel{}_{\alpha}$	$1^-_\cdot f^\perp{}_{\alpha}$
$1^+_\cdot\mathcal{A}^\parallel\,\dagger^{\alpha\beta}$	$\frac{1}{4}(\alpha_0 - 4\beta_1)$	$\frac{\alpha_0 - 4\beta_1}{2\sqrt{2}}$	$\frac{i(\alpha_0 - 4\beta_1)k}{2\sqrt{2}}$	0	0	0	0
$1^+_\cdot\mathcal{A}^\perp\,\dagger^{\alpha\beta}$	$\frac{\alpha_0 - 4\beta_1}{2\sqrt{2}}$	0	0	0	0	0	0
$1^+_\cdot f^\parallel\,\dagger^{\alpha\beta}$	$-\frac{i(\alpha_0 - 4\beta_1)k}{2\sqrt{2}}$	0	0	0	0	0	0
$1^-_\cdot\mathcal{A}^\parallel\,\dagger^{\alpha}$	0	0	0	$\frac{1}{4}(\alpha_0 - 4\beta_1)$	$-\frac{\alpha_0 - 4\beta_1}{2\sqrt{2}}$	0	$-\frac{1}{2}i(\alpha_0 - 4\beta_1)k$
$1^-_\cdot\mathcal{A}^\perp\,\dagger^{\alpha}$	0	0	0	$-\frac{\alpha_0 - 4\beta_1}{2\sqrt{2}}$	0	0	0
$1^-_\cdot f^\parallel\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_\cdot f^\perp\,\dagger^{\alpha}$	0	0	0	$\frac{1}{2}i(\alpha_0 - 4\beta_1)k$	0	0	0

	$2^+_\cdot\mathcal{A}^\parallel{}_{\alpha\beta}$	$2^+_\cdot f^\parallel{}_{\alpha\beta}$	$2^-_\cdot\mathcal{A}^\parallel{}_{\alpha\beta\chi}$
$2^+_\cdot\mathcal{A}^\parallel\,\dagger^{\alpha\beta}$	$-\frac{\alpha_0}{4} + \beta_1$	$\frac{i(\alpha_0 - 4\beta_1)k}{2\sqrt{2}}$	0
$2^+_\cdot f^\parallel\,\dagger^{\alpha\beta}$	$-\frac{i(\alpha_0 - 4\beta_1)k}{2\sqrt{2}}$	$2\beta_1 k^2$	0
$2^-_\cdot\mathcal{A}^\parallel\,\dagger^{\alpha\beta\chi}$	0	0	$-\frac{\alpha_0}{4} + \beta_1$

Saturated propagator

	$0^+_\cdot\sigma^\parallel$	$0^+_\cdot\tau^\parallel$	$0^+_\cdot\tau^\perp$	$0^-_\cdot\sigma^\parallel$
$0^+_\cdot\sigma^\parallel\,\dagger$	$\frac{8\beta_1}{\alpha_0^2 - 4\alpha_0\beta_1 + 8\alpha_6\beta_1 k^2}$	$-\frac{i\sqrt{2}(\alpha_0 - 4\beta_1)}{\alpha_0(\alpha_0 - 4\beta_1)k + 8\alpha_6\beta_1 k^3}$	0	0
$0^+_\cdot\tau^\parallel\,\dagger$	$\frac{i\sqrt{2}(\alpha_0 - 4\beta_1)}{\alpha_0(\alpha_0 - 4\beta_1)k + 8\alpha_6\beta_1 k^3}$	$-\frac{\alpha_0 - 4\beta_1 + 2\alpha_6 k^2}{k^2(\alpha_0^2 - 4\alpha_0\beta_1 + 8\alpha_6\beta_1 k^2)}$	0	0
$0^+_\cdot\tau^\perp\,\dagger$	0	0	0	0
$0^-_\cdot\sigma^\parallel\,\dagger$	0	0	0	$\frac{2}{\alpha_0 - 4\beta_1}$

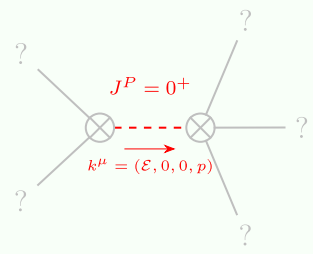
	$1^+_\cdot\sigma^\parallel{}_{\alpha\beta}$	$1^+_\cdot\sigma^\perp{}_{\alpha\beta}$	$1^+_\cdot\tau^\parallel{}_{\alpha\beta}$	$1^-_\cdot\sigma^\parallel{}_{\alpha}$	$1^-_\cdot\sigma^\perp{}_{\alpha}$	$1^-_\cdot\tau^\parallel{}_{\alpha}$	$1^-_\cdot\tau^\perp{}_{\alpha}$
$1^+_\cdot\sigma^\parallel\,\dagger^{\alpha\beta}$	0	$\frac{2\sqrt{2}}{(\alpha_0 - 4\beta_1)(1+k^2)}$	$\frac{2i\sqrt{2}k}{(\alpha_0 - 4\beta_1)(1+k^2)}$	0	0	0	0
$1^+_\cdot\sigma^\perp\,\dagger^{\alpha\beta}$	$\frac{2\sqrt{2}}{(\alpha_0 - 4\beta_1)(1+k^2)}$	$-\frac{2}{(\alpha_0 - 4\beta_1)(1+k^2)^2}$	$-\frac{2ik}{(\alpha_0 - 4\beta_1)(1+k^2)^2}$	0	0	0	0
$1^+_\cdot\tau^\parallel\,\dagger^{\alpha\beta}$	$-\frac{2i\sqrt{2}k}{(\alpha_0 - 4\beta_1)(1+k^2)}$	$\frac{2ik}{(\alpha_0 - 4\beta_1)(1+k^2)^2}$	$-\frac{2k^2}{(\alpha_0 - 4\beta_1)(1+k^2)^2}$	0	0	0	0
$1^-_\cdot\sigma^\parallel\,\dagger^{\alpha}$	0	0	0	0	$-\frac{2\sqrt{2}}{(\alpha_0 - 4\beta_1)(1+2k^2)}$	0	$-\frac{4ik}{(\alpha_0 - 4\beta_1)(1+2k^2)}$
$1^-_\cdot\sigma^\perp\,\dagger^{\alpha}$	0	0	0	$-\frac{2\sqrt{2}}{(\alpha_0 - 4\beta_1)(1+2k^2)}$	$-\frac{2}{(\alpha_0 - 4\beta_1)(1+2k^2)^2}$	0	$-\frac{2i\sqrt{2}k}{(\alpha_0 - 4\beta_1)(1+2k^2)^2}$
$1^-_\cdot\tau^\parallel\,\dagger^{\alpha}$	0	0	0	0	0	0	0
$1^-_\cdot\tau^\perp\,\dagger^{\alpha}$	0	0	0	$\frac{4ik}{(\alpha_0 - 4\beta_1)(1+2k^2)}$	$\frac{2i\sqrt{2}k}{(\alpha_0 - 4\beta_1)(1+2k^2)^2}$	0	$-\frac{4k^2}{(\alpha_0 - 4\beta_1)(1+2k^2)^2}$

	$2^+_\cdot\sigma^\parallel{}_{\alpha\beta}$	$2^+_\cdot\tau^\parallel{}_{\alpha\beta}$	$2^-_\cdot\sigma^\parallel{}_{\alpha\beta\chi}$
$2^+_\cdot\sigma^\parallel\,\dagger^{\alpha\beta}$	$-\frac{16\beta_1}{\alpha_0^2 - 4\alpha_0\beta_1}$	$\frac{2i\sqrt{2}}{\alpha_0 k}$	0
$2^+_\cdot\tau^\parallel\,\dagger^{\alpha\beta}$	$-\frac{2i\sqrt{2}}{\alpha_0 k}$	$\frac{2}{\alpha_0 k^2}$	0
$2^-_\cdot\sigma^\parallel\,\dagger^{\alpha\beta\chi}$	0	0	$\frac{1}{-\frac{\alpha_0}{4} + \beta_1}$

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
$2ik\;1^-_\cdot\sigma^{\perp\alpha} + 1^-_\cdot\tau^{\perp\alpha} == 0$	$\partial_\chi\partial_\beta\partial^\alpha\tau(\Delta+\mathcal{K})^{\beta\chi} == \partial_\chi\partial^\chi\partial_\beta\tau(\Delta+\mathcal{K})^{\alpha\beta} + 2\,\partial_\delta\partial^\delta\partial_\chi\partial_\beta\sigma^{\beta\alpha\chi}$	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
Total expected gauge generators:		10

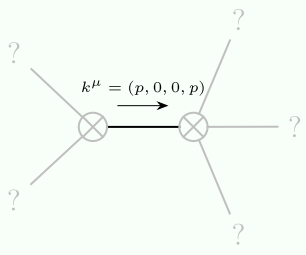
Massive spectrum



Massive particle

Pole residue:	$\frac{1}{\alpha_0} + \frac{1}{\alpha_6} - \frac{1}{4\beta_1} > 0$
Square mass:	$-\frac{\alpha_0(\alpha_0 - 4\beta_1)}{8\alpha_6\beta_1} > 0$
Spin:	0
Parity:	Even

Massless spectrum



Massless particle

Pole residue:	$\frac{p^2}{\alpha_0} > 0$
Polarisations:	2

Unitarity conditions

$$\alpha_0 > 0\;\&\&\;\alpha_6 > 0\;\&\&\;(\beta_1 < 0\;||\;\beta_1 > \tfrac{\alpha_0}{4})$$