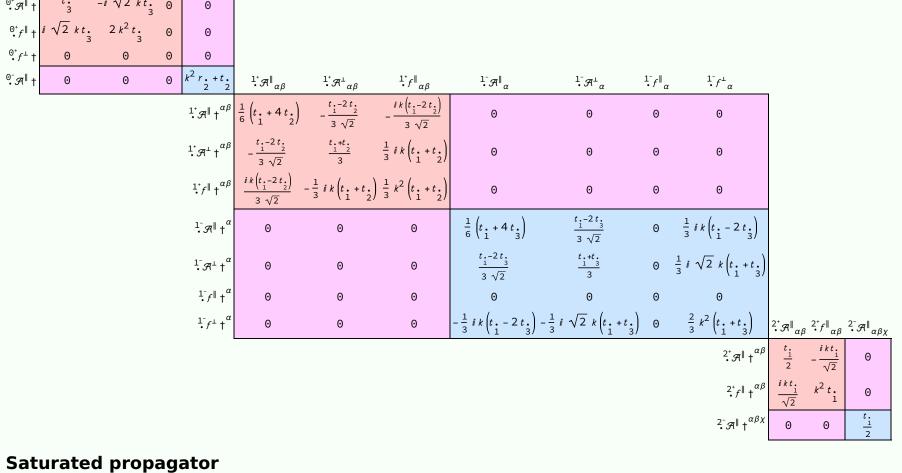
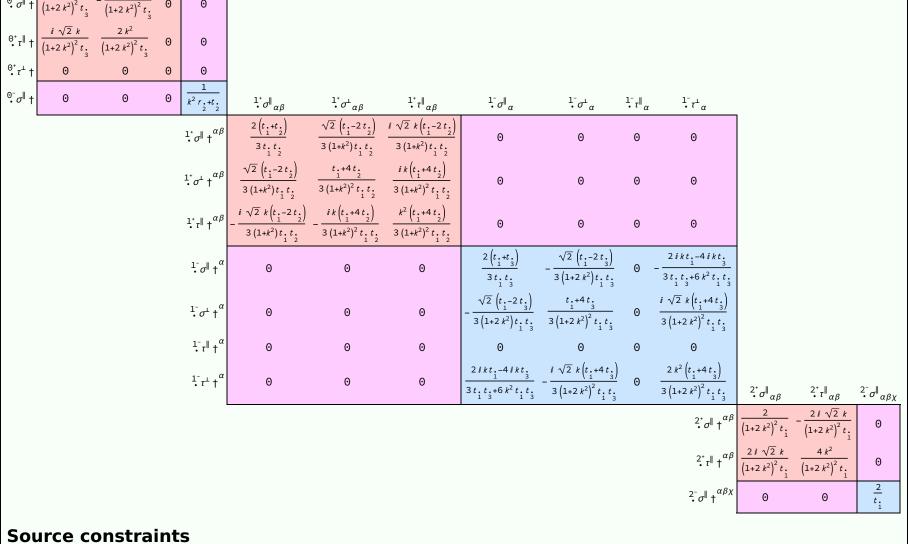
$S = \iiint \left(\frac{1}{6}\left(2t_{1}^{2}\mathcal{A}^{\alpha_{1}}_{\alpha}\mathcal{A}^{\theta_{1}}_{\theta}-4t_{3}^{2}\mathcal{A}^{\alpha_{1}}_{\theta}+6\mathcal{A}^{\alpha\beta\chi}_{\alpha}\mathcal{A}^{\theta_{1}}_{\theta}+6\mathcal{A}^{\alpha\beta\chi}_{\alpha}\mathcal{A}^{\theta_{1}}_{\theta}+6\mathcal{A}^{\alpha\beta\chi}_{\alpha}\mathcal{A}^{\theta_{1}}_{\theta}+6\mathcal{A}^{\alpha\beta\chi}_{\alpha}\mathcal{A}^{\theta_{1}}_{\theta}+6\mathcal{A}^{\alpha\beta\chi}_{\alpha}\mathcal{A}^{\theta_{1}}_{\theta}+6\mathcal{A}^{\alpha\beta\chi}_{\alpha}\mathcal{A}^{\theta_{1}}_{\theta}+6\mathcal{A}^{\alpha\beta\chi}_{\alpha}\mathcal{A}^{\theta_{1}}_{\theta}+6\mathcal{A}^{\alpha\beta\chi}_{\alpha}\mathcal{A}^{\theta_{1}}_{\theta}+6\mathcal{A}^{\alpha\beta\chi}_{\alpha}\mathcal{A}^{\theta_{1}}_{\theta}+4t_{3}^{2}\partial_{\theta}\mathcal{A}^{\theta_{1}}_{\theta}+8t_{3}^{2}\mathcal{A}^{\theta_{1}}_{\alpha}\partial_{\theta}\mathcal{A}^{\theta_{1}}_{\theta}+4t_{1}^{2}\mathcal{A}^{\theta_{1}}_{\theta}\partial_{\theta}\mathcal{A}^{\theta_{1}}_{\alpha}+4t_{1}^{2}\mathcal{A}^{\theta_{1}}_{\theta}\partial_{\theta}\mathcal{A}^{\theta_{1}}_{\alpha}+4t_{1}^{2}\partial_{\theta}\mathcal{A}^{\theta_{1}}_{\alpha}+4t_{3}^{2}\partial_{\theta}\mathcal{A}^{\alpha\beta}_{\alpha}+4t_{3}^{2}\partial_{\theta}\mathcal{A}^{\alpha\beta}_{\alpha}+4t_{3}^{2}\partial_{\theta}\mathcal{A}^{\alpha\beta}_{\alpha}+4t_{1}^{2}\partial_{\theta}\mathcal{A}^{\alpha\beta}_{\alpha}+4t_{1}^{2}\partial_{\theta}\mathcal{A}^{\alpha\beta}_{\alpha}+4t_{1}^{2}\partial_{\theta}\mathcal{A}^{\alpha\beta}_{\alpha}+4t_{2}^{2}\partial_{\theta}\mathcal{A}^{\alpha\beta}_{\alpha}+4t_{2}^{2}\partial_{\theta}\mathcal{A}^{\alpha\beta}_{\alpha}+4t_{2}^{2}\partial_{\theta}\mathcal{A}^{\alpha\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal{A}^{\beta\beta}_{\alpha}\mathcal{A}^{\beta}_{\alpha}+4t_{2}^{2}\mathcal$

0⁺ A∥ 0⁺ f

Wave operator

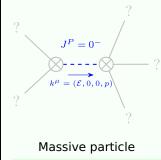


$0^{+}_{\bullet}\sigma^{\parallel}$ $0^{+}_{\bullet}\tau^{\parallel}$ $0^{+}_{\bullet}\tau^{\perp}$ 0^{-}_{\bullet}



| Spin-parity form | Covariant form | Multiplicities |
|--|---|----------------|
| $\theta^+_{\bullet} \tau^{\perp} == 0$ | $\partial_{\beta}\partial_{\alpha}\tau \left(\Delta + \mathcal{K}\right)^{\alpha\beta} == 0$ | 1 |
| $-2 i k \cdot \sigma^{\parallel} + 0 \cdot \tau^{\parallel} == 0$ | $\partial_{\beta}\partial_{\alpha\tau} \left(\Delta + \mathcal{K}\right)^{\alpha\beta} = \partial_{\beta}\partial^{\beta}_{\tau} \left(\Delta + \mathcal{K}\right)^{\alpha}_{\alpha} + 2 \partial_{\chi}\partial^{\chi}\partial_{\beta}\sigma^{\alpha}_{\alpha}^{\beta}$ | 1 |
| $\frac{2 i k \cdot 1^{-} \sigma^{\perp}^{\alpha} + 1^{-} \tau^{\perp}^{\alpha} == 0}{$ | $\partial_{\chi}\partial_{\beta}\partial^{\alpha}{}_{\tau}\left(\Delta+\mathcal{K}\right)^{\beta\chi} = \partial_{\chi}\partial^{\chi}\partial_{\beta\tau}\left(\Delta+\mathcal{K}\right)^{\alpha\beta} + 2\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial_{\beta}\sigma^{\beta\alpha\chi}$ | 3 |
| 1- _τ α == 0 | $\partial_{\chi}\partial_{\beta}\partial^{\alpha}{}_{\tau}\left(\Delta+\mathcal{K}\right)^{\beta\chi} = \partial_{\chi}\partial^{\chi}\partial_{\beta\tau}\left(\Delta+\mathcal{K}\right)^{\beta\alpha}$ | 3 |
| $i k \frac{1^+}{2} \sigma^{\perp}^{\alpha\beta} + \frac{1^+}{2} \tau^{\parallel}^{\alpha\beta} = 0$ | $\partial_{\chi}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\beta\chi} + \partial_{\chi}\partial^{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\chi\alpha} + \partial_{\chi}\partial^{\chi}\tau\left(\Delta+\mathcal{K}\right)^{\alpha\beta} + 2\partial_{\alpha}\partial_{\chi}\partial^{\alpha}\sigma^{\chi\beta\delta} + 2\partial_{\alpha}\partial^{\delta}\partial_{\chi}\sigma^{\chi\alpha\beta} = =$ | 3 |
| | $\partial_{\chi}\partial^{\alpha}\tau\left(\Delta+\mathcal{K}\right)^{\chi\beta}+\partial_{\chi}\partial^{\beta}\tau\left(\Delta+\mathcal{K}\right)^{\alpha\chi}+\partial_{\chi}\partial^{\chi}\tau\left(\Delta+\mathcal{K}\right)^{\beta\alpha}+2\;\partial_{\delta}\partial_{\chi}\partial^{\beta}\sigma^{\chi\alpha\delta}$ | |
| $-2 i k \frac{2^+ \sigma}{\sigma} ^{\alpha \beta} + \frac{2^+ \tau}{\sigma} ^{\alpha \beta} = 0$ | $-i\left(4\ \partial_{\delta}\partial_{\chi}\partial^{\beta}\partial^{\alpha}_{\tau}\ (\Delta+\mathcal{K})^{\chi\delta} + 2\ \partial_{\delta}\partial^{\delta}\partial^{\beta}\partial^{\alpha}_{\tau}\ (\Delta+\mathcal{K})^{\chi}_{\ \chi} - 3\ \partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}_{\tau}\ (\Delta+\mathcal{K})^{\beta\chi} - 3\ \partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}_{\tau}\ (\Delta+\mathcal{K})^{\chi\beta} - 3\ \partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\partial_{\chi}\ (\Delta+\mathcal{K})^{\chi\beta} - 3\ \partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\partial_{\chi}\ (\Delta+\mathcal{K})^{\chi\beta} - 3\ \partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\partial_{\chi}\ (\Delta+\mathcal{K})^{\chi\beta} - 3\ \partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\partial_{\chi}\ (\Delta+\mathcal{K})^{\chi\beta} - 3\ \partial_{\delta}\partial^{\alpha}\partial_{\chi}\partial^{\alpha}\partial_{\chi}\ (\Delta+\mathcal{K})^{\chi\beta} - 3\ \partial_{\delta}\partial^{\alpha}\partial_{\chi}\partial^{\alpha}\partial_{\chi}\ (\Delta+\mathcal{K})^{\chi\beta} - 3\ \partial$ | 5 |
| | $3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\beta} \tau (\Delta + \mathcal{K})^{\alpha \chi} - 3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\beta} \tau (\Delta + \mathcal{K})^{\chi \alpha} + 3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\chi} \tau (\Delta + \mathcal{K})^{\alpha \beta} + 3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\chi} \tau (\Delta + \mathcal{K})^{\beta \alpha} +$ | |
| | $4 i k^{X} \partial_{\epsilon} \partial_{X} \partial^{\beta} \partial^{\alpha} \sigma^{\delta}_{\delta}{}^{\epsilon} - 6 i k^{X} \partial_{\epsilon} \partial_{\delta} \partial_{X} \partial^{\alpha} \sigma^{\delta\beta\epsilon} - 6 i k^{X} \partial_{\epsilon} \partial_{\delta} \partial_{X} \partial^{\beta} \sigma^{\delta\alpha\epsilon} + 6 i k^{X} \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial_{X} \sigma^{\alpha\beta\delta} +$ | |
| | $ 6 \ \emph{i} \ \emph{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} \left(\Delta + \mathcal{K} \right)^{\chi \delta} - 2 \ \eta^{\alpha \beta} \ \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\delta}_{\tau} \left(\Delta + \mathcal{K} \right)^{\chi} - 4 \ \emph{i} \ \eta^{\alpha \beta} \ \emph{k}^{\chi} \ \partial_{\phi} \partial^{\phi} \partial_{\epsilon} \partial_{\chi} \sigma^{\delta}_{\delta} \stackrel{\epsilon}{\circ} \right) == 0 $ | |
| Total expected gauge generators: | | 16 |

Massive spectrum



Pole residue: $\left| -\frac{1}{\frac{r}{2}} > 0 \right|$

| Square mass: | $-\frac{\frac{t}{2}}{\frac{r}{2}} > 0$ | | | |
|-------------------|--|--|--|--|
| Spin: | 0 | | | |
| Parity: | Odd | | | |
| Massless spectrum | | | | |

(No particles)

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Unitarity conditions

r. < 0 & t. > 0