

Wave operator and propagator

$$S = \int \int \int \int (f^{\alpha\beta} \tau_{\alpha\beta} + \mathcal{A}^{\alpha\beta\chi} \sigma_{\alpha\beta\chi} - \frac{1}{2} \alpha_0 (\mathcal{A}_{\alpha\beta} \mathcal{A}^{\alpha\beta\chi} + \mathcal{A}^{\alpha\beta}{}_{\alpha} \mathcal{A}_{\beta\chi}{}^{\alpha} + 2 f^{\alpha\beta} \partial_{\beta} \mathcal{A}_{\alpha\chi}{}^{\alpha} - 2 \partial_{\beta} \mathcal{A}^{\alpha\beta}{}_{\alpha} - 2 f^{\alpha\beta} \partial_{\chi} \mathcal{A}_{\alpha\beta}{}^{\chi} + 2 f^{\alpha}{}_{\alpha} \partial_{\chi} \mathcal{A}^{\beta\chi}{}_{\beta}) + \alpha_5 (\partial_{\beta} \mathcal{A}_{\chi\delta}{}^{\delta} \partial^{\chi} \mathcal{A}^{\alpha\beta}{}_{\alpha} - \partial_{\chi} \mathcal{A}_{\beta\delta}{}^{\delta} \partial^{\chi} \mathcal{A}^{\alpha\beta}{}_{\alpha} - (\partial_{\alpha} \mathcal{A}^{\alpha\beta\chi} - 2 \partial^{\chi} \mathcal{A}^{\alpha\beta}{}_{\alpha}) (\partial_{\delta} \mathcal{A}_{\beta\chi}{}^{\delta} - \partial_{\delta} \mathcal{A}_{\chi\beta}{}^{\delta})) | (t, x, y, z) |^d d^3x d^4t$$

[illegible]

$2^{\#1}_{+} \mathcal{A}_{\alpha\beta}$	$2^{\#1}_{+} f_{\alpha\beta}$	$2^{\#1}_{-} \mathcal{A}_{\alpha\beta\chi}$
$-\frac{\alpha_0}{4}$	$\frac{i \alpha_0 k}{2 \sqrt{2}}$	0
$-\frac{i \alpha_0 k}{2 \sqrt{2}}$	0	0
0	0	$-\frac{\alpha_0}{4}$

	$\overset{\#1}{2^+} \sigma \alpha \beta$	$\overset{\#1}{2^+} \tau \alpha \beta$	$\overset{\#1}{2^-} \sigma \alpha \beta \chi$
$\overset{\#1}{2^+} \sigma \uparrow^{\alpha \beta}$	0	$\frac{2i\sqrt{2}}{\alpha_0 k}$	0
$\overset{\#1}{2^+} \tau \uparrow^{\alpha \beta}$	$-\frac{2i\sqrt{2}}{\alpha_0 k}$	$\frac{2}{\alpha_0 k^2}$	0
$\overset{\#1}{2^-} \sigma \uparrow^{\alpha \beta \chi}$	0	0	$-\frac{4}{\alpha_0}$

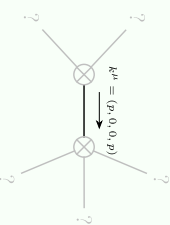
0	$-\frac{f\sqrt{2}}{\alpha_0 k}$	0	0
0	$-\frac{1}{\alpha_0 k^2}$	0	0
0	0	0	0
$\frac{f\sqrt{2}}{\alpha_0 k}$	0	0	$\frac{2}{\alpha_0}$

$$\begin{array}{cccc} \begin{array}{c} \#1 \\ 0^+ \end{array} \sigma & \begin{array}{c} \#1 \\ 0^+ \end{array} \tau & \begin{array}{c} \#2 \\ 0^+ \end{array} \tau & \begin{array}{c} \#1 \\ 0^- \end{array} \sigma \\ \begin{array}{c} \#1 \\ 0^+ \end{array} \mathcal{A} & \begin{array}{c} \#1 \\ 0^+ \end{array} f & \begin{array}{c} \#2 \\ 0^+ \end{array} f & \begin{array}{c} \#1 \\ 0^- \end{array} \mathcal{A} \end{array}$$

$\frac{a_0}{2}$	$-\frac{i a_0 k}{\sqrt{2}}$	0	0
$\frac{i a_0 k}{\sqrt{2}}$	0	0	0
0	0	0	0
0	0	0	$\frac{a_0}{2}$

Massive and massless spectra

Poleresidue:	$\frac{1}{a_0} > 0$
Polarisations:	2



(No particles)

Unitarity conditions

Spin-parity	form	Covariant form	Multiplicities
$\#2_0^+$	$\tau = 0$	$\partial_\beta \partial_\alpha \tau^{\alpha\beta} = 0$	1
$\#1_2^-$	$\tau = 2, \#1_1^-$	$\partial_\chi \partial_\beta \partial_\alpha \tau^{\beta\alpha} = 0$ $\partial_\chi \partial_\beta \partial_\alpha \tau^{\alpha\beta} = 2 \partial_\delta \partial_\beta \partial_\chi \partial_\alpha \tau^{\delta\beta}$	3
$\#1_1^-$	$\tau = 0$	$\partial_\chi \partial_\beta \partial_\alpha \tau^{\beta\alpha} = 0$ $\partial_\chi \partial_\beta \partial_\alpha \tau^{\beta\alpha} = 2 \partial_\delta \partial_\beta \partial_\chi \partial_\alpha \tau^{\delta\beta}$	3
$\#1_1^+$	$\tau^{\alpha\beta} + i \#1_1^+$	$\partial_\chi \partial_\beta \partial_\alpha \tau^{\beta\alpha} + \partial_\chi \partial_\beta \tau^{\alpha\beta} + \partial_\chi \partial_\alpha \partial_\beta \tau^{\alpha\beta} + 2 \partial_\delta \partial_\beta \partial_\chi \partial_\alpha \tau^{\delta\beta} + 2 \partial_\delta \partial_\alpha \partial_\beta \partial_\chi \tau^{\delta\beta} = 0$ $\partial_\chi \partial_\alpha \partial_\beta \tau^{\alpha\beta} + \partial_\chi \partial_\beta \tau^{\alpha\alpha} + \partial_\chi \partial_\alpha \tau^{\beta\beta} = 0$	3
Total expected gauge generators:			10

Total expected gauge generators: