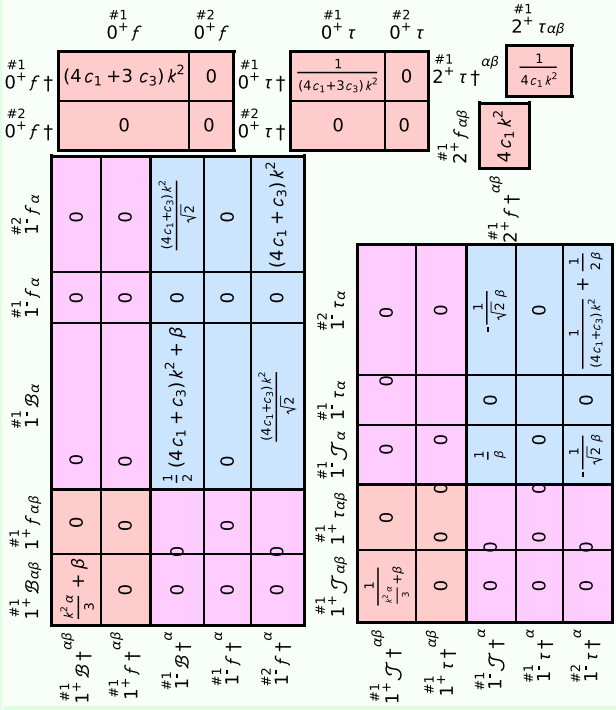
Particle spectrograph

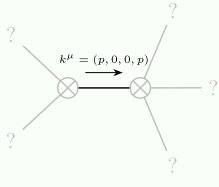
Wave operator and propagator

$$S = \int\int\int (\beta\, \mathcal{B}_{\alpha\beta}\, \mathcal{B}^{\alpha\beta} + f^{\alpha\beta}\, \tau_{\alpha\beta} + \mathcal{B}^{\alpha\beta}\, \mathcal{T}_{\alpha\beta} + c_3 (\partial_\beta f^{\chi}{}_{\chi}\, \partial^\beta f^{\alpha}{}_{\alpha} - 2\, \partial^\beta f^{\alpha}{}_{\alpha}\, \partial_\chi f_\beta{}^{\chi} + \partial_\beta f^{\alpha\beta}\, (\partial_\chi f^{\chi}{}_{\alpha} + 2\, \partial_\chi \mathcal{B}_\alpha{}^{\chi}) - \partial_\alpha \mathcal{B}^{\alpha\beta}\, \partial_\chi \mathcal{B}_\beta{}^{\chi} - 2\, \partial^\beta f^{\alpha}{}_{\alpha}\, \partial_\chi \mathcal{B}_\beta{}^{\chi}) - \frac{1}{3}\, \alpha\, (2\, \partial_\beta \mathcal{B}_{\alpha\chi} - \partial_\chi \mathcal{B}_{\alpha\beta})\, \partial^\chi \mathcal{B}^{\alpha\beta} + 2\, c_1 (-2\, \partial_\alpha f_{\beta\chi}\, \partial^\chi f^{\alpha\beta} - \partial_\alpha f_{\chi\beta}\, \partial^\chi f^{\alpha\beta} + \partial_\beta f_{\alpha\chi}\, \partial^\chi f^{\alpha\beta} + 4\, \partial_\beta \mathcal{B}_{\alpha\chi}\, \partial^\chi f^{\alpha\beta} + \partial_\chi f_{\alpha\beta}\, \partial^\chi f^{\alpha\beta} + \partial_\chi f_{\beta\alpha}\, \partial^\chi f^{\alpha\beta} + 2\, \partial_\beta \mathcal{B}_{\alpha\chi}\, \partial^\chi \mathcal{B}^{\alpha\beta}))[t, x, y, z]\, d\, z\, d\, y\, d\, x\, d\, t$$

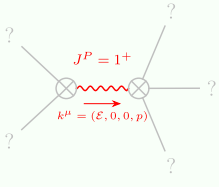


Spin-parity form	Covariant form	Multiplicities
$\overset{\#2}{0^+}\,\tau = 0$	$\partial_\beta \partial_\alpha \tau^{\alpha\beta} = 0$	1
$\overset{\#1}{1^-}\,\tau^{\alpha} = 0$	$\partial_\chi \partial_\beta \partial^\alpha \tau^{\beta\chi} = \partial_\chi \partial^\chi \partial_\beta \tau^{\beta\alpha}$	3
$\overset{\#1}{1^+}\,\tau^{\alpha\beta} = 0$	$\partial_\chi \partial^\alpha \tau^{\beta\chi} + \partial_\chi \partial^\beta \tau^{\chi\alpha} + \partial_\chi \partial^\chi \tau^{\alpha\beta} = \partial_\chi \partial^\alpha \tau^{\chi\beta} + \partial_\chi \partial^\beta \tau^{\alpha\chi} + \partial_\chi \partial^\chi \tau^{\beta\alpha}$	3
Total expected gauge generators:		7

Massive and massless spectra



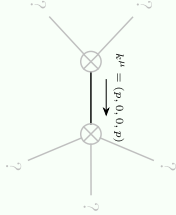
Massless particle



Massive particle

Polesidue:	$\frac{1}{c_1} > 0$
Polarisations:	2

Massless particle



Polesidue:	$\frac{4+(4c_1+c_3)^2}{c_1 (4c_1+c_3)(4c_1+3c_3)} > 0$
Polarisations:	1

Polesidue:	$\frac{3}{\alpha} > 0$
Square mass:	$-\frac{3\beta}{\alpha} > 0$
Spin:	1
Parity:	Even

Unitarity conditions