Particle spectrograph

Wave operator and propagator

$$S == \iiiint (f^{\alpha\beta}\ \tau_{\alpha\beta} + c_2 (-\partial_\beta f^{\mu}{}_{\mu}\ \partial^\beta f^{\alpha}{}_{\alpha} - \partial_\beta f^{\alpha\beta}\ \partial_\mu f_{\alpha}{}^{\mu} + 2\ \partial^\beta f^{\alpha}{}_{\alpha}\ \partial_\mu f_{\beta}{}^{\mu} - 2\ \partial_\alpha f_{\beta\mu}\ \partial^\mu f^{\alpha\beta} + \partial_\beta f_{\alpha\mu}\ \partial^\mu f^{\alpha\beta} + \partial_\mu f_{\beta\alpha}\ \partial^\mu f^{\alpha\beta}) - 2\ c_1 (\partial_\mu f^{\nu}{}_{\nu}\ \partial^\mu f^{\alpha}{}_{\alpha} + \partial_\mu f^{\alpha\mu}\ \partial_\nu f_{\alpha}{}^{\nu} - 2\ \partial^\mu f^{\alpha}{}_{\alpha}\ \partial_\nu f_{\mu}{}^{\nu} + \partial_\alpha f_{\nu\mu}\ \partial^\nu f^{\alpha\mu} - \partial_\nu f_{\alpha\mu}\ \partial^\nu f^{\alpha\mu}))[t, x, y, z]\, dl\ z\ dl\ y\ dl\ x\ dl\ t$$

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

$^{\#1}_{2^+}f_{\alpha\beta}$ = $(2\,c_1 + c_2)\,k^2$

$^{\#1}_{2^+}\tau^{\dagger}_{\alpha\beta}$ = $\frac{1}{(2\,c_1+c_2)\,k^2}$

	$^{\#1}_{0^+}f$	$^{\#2}_{0^+}f$
$^{\#1}_{0^+}f^{\dagger}$	$-2(2\,c_1 + c_2)\,k^2$	0
$^{\#2}_{0^+}f^{\dagger}$	0	0

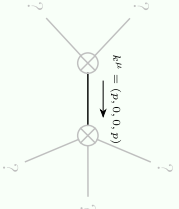
	$^{\#1}_{0^+}\tau^{\dagger}$	$^{\#2}_{0^+}\tau^{\dagger}$
$^{\#1}_{0^+}\tau$	$-\frac{1}{2(2\,c_1+c_2)\,k^2}$	0
$^{\#2}_{0^+}\tau$	0	0

	$^{\#1}_{1^+}f_{\alpha\beta}$	$^{\#1}_{1^-}f_{\alpha}$	$^{\#2}_{1^-}f_{\alpha}$
$^{\#1}_{1^+}f^{\dagger}_{\alpha\beta}$	$(2\,c_1 - c_2)\,k^2$	0	0
$^{\#1}_{1^-}f^{\dagger}_{\alpha}$	0	0	0
$^{\#2}_{1^-}f^{\dagger}_{\alpha}$	0	0	0

	$^{\#1}_{1^+}\tau^{\dagger}_{\alpha\beta}$	$^{\#1}_{1^-}\tau^{\dagger}_{\alpha}$	$^{\#2}_{1^-}\tau^{\dagger}_{\alpha}$
$^{\#1}_{1^+}\tau_{\alpha\beta}$	$\frac{1}{(2\,c_1-c_2)\,k^2}$	0	0
$^{\#1}_{1^-}\tau_{\alpha}$	0	0	0
$^{\#2}_{1^-}\tau_{\alpha}$	0	0	0

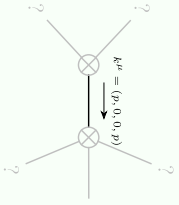
Massive and massless spectra

(No particles)



Massless particle

Poleresidue:	$\frac{1}{2c_1-c_2} > 0$
Polarisations:	1



Massless particle

Poleresidue:	$\frac{1}{2c_1+c_2} > 0$
Polarisations:	2

Unitarity conditions