Particle spectrograph

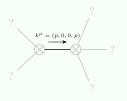
Wave operator and propagator

Spin-parity form Cov	ariant form	Multiplicities
$0^{+2} 0^{+} \tau == 0$	$\partial_{\beta}\partial_{\alpha}\tau^{\alpha\beta} == 0$	1
^{#1} _O ⁺ τ ==O	$\partial_{\beta}\partial_{\alpha}\tau^{\alpha\beta} == \hat{q}_{\beta}\partial^{\beta}\tau^{\alpha}_{\ \alpha}$	1
#1 0 ⁺ σ ==0	$\partial_{\beta}\sigma^{\alpha\beta}_{\alpha} = 0$	1
$\frac{^{\#2}}{1} \tau^{\alpha} == 0$ True		3
$1^{\frac{\alpha}{1}} \tau^{\alpha} == 0$	$\partial_{\chi}\partial_{\beta}\partial^{\alpha}\tau^{\beta\chi} == \partial_{\chi}\partial^{\chi}\partial_{\beta}\tau^{\beta\alpha}$	3
$\frac{^{\#2}}{1}\sigma^{\alpha}=0$	$\partial_{\chi}\partial_{\beta}\sigma^{\alpha\beta\chi}=0$	3
$\frac{{}^{\#1}_{1}{}^{\alpha\beta}}{1} + i k_{1}^{\#2} \sigma^{\alpha\beta} == 0$	$\partial_{\chi}\partial^{\alpha}\tau^{\beta\chi} + \partial_{\chi}\partial^{\beta}\tau^{\chi\alpha} + \partial_{\chi}\partial^{\chi}\tau^{\alpha\beta} + 2\ \partial_{\delta}\partial_{\chi}\partial^{\alpha}\sigma^{\beta\chi\delta} + 2\ \partial_{\delta}\partial^{\delta}\partial_{\chi}\sigma^{\alpha\beta\chi} = =$	3
	$\partial_{\chi}\partial^{\alpha}\tau^{\chi\beta} + \partial_{\chi}\partial^{\beta}\tau^{\alpha\chi} + \partial_{\chi}\partial^{\chi}\tau^{\beta\alpha} + 2 \partial_{\alpha}\partial_{\chi}\partial^{\beta}\sigma^{\alpha\chi\delta}$	
$\frac{^{\#1}}{2}\sigma^{\alpha\beta\chi} = 0 \qquad 3$	$\partial_{\epsilon}\partial_{\delta}\partial^{\chi}\partial^{\alpha}\sigma^{\beta\delta\epsilon} + 3 \partial_{\epsilon}\partial^{\epsilon}\partial^{\chi}\partial^{\alpha}\sigma^{\beta\delta}_{\delta} + 2 \partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\beta}\sigma^{\alpha\chi\delta} +$	5
	$4\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\beta}\sigma^{\alpha\delta\chi}+2\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\beta}\sigma^{\chi\delta\alpha}+4\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\chi}\sigma^{\alpha\beta\delta}+$	
	$2\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\chi}\sigma^{\alpha\delta\beta} + 2\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\sigma^{\beta\chi\alpha} + 3\eta^{\beta\chi}\partial_{\phi}\partial^{\phi}\partial_{\epsilon}\partial^{\alpha}\sigma^{\delta\epsilon}_{\delta} +$	
	$3 \eta^{\alpha\chi} \partial_{\phi} \partial^{\phi} \partial_{\epsilon} \partial_{\delta} \sigma^{\beta \delta \epsilon} + 3 \eta^{\beta\chi} \partial_{\phi} \partial^{\phi} \partial_{\epsilon} \partial^{\epsilon} \sigma^{\alpha \delta}{}_{\delta} = =$	
	$3 \partial_{\epsilon} \partial_{\delta} \partial^{\chi} \partial^{\beta} \sigma^{\alpha \delta \epsilon} + 3 \partial_{\epsilon} \partial^{\epsilon} \partial^{\chi} \partial^{\beta} \sigma^{\alpha \delta} + 2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\alpha} \sigma^{\beta \chi \delta} +$	
	$4\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\alpha}\sigma^{\beta\delta\chi} + 2\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\alpha}\sigma^{\chi\delta\beta} + 2\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\chi}\sigma^{\beta\delta\alpha} +$	
	$4 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\delta} \sigma^{\alpha \beta \chi} + 2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\delta} \sigma^{\alpha \chi \beta} + 3 \eta^{\alpha \chi} \partial_{\phi} \partial^{\phi} \partial_{\epsilon} \partial^{\beta} \sigma^{\delta \epsilon}{}_{\delta} +$	
	$ 3 \eta^{\beta\chi} \partial_{\phi}\partial^{\phi}\partial_{\varepsilon}\partial_{\delta}\sigma^{\alpha\delta\varepsilon} + 3 \eta^{\alpha\chi} \partial_{\phi}\partial^{\phi}\partial_{\varepsilon}\partial^{\varepsilon}\sigma^{\beta\delta}{}_{\delta} $	
$2^{+1} \tau^{\alpha\beta} = 0$ 4	$\partial_{\delta}\partial_{\chi}\partial^{\beta}\partial^{\alpha}\tau^{\chi\delta} + 2 \ \partial_{\delta}\partial^{\delta}\partial^{\beta}\partial^{\alpha}\tau^{\chi}_{\ \chi} + 3 \ \partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau^{\alpha\beta} + 3 \ \partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\chi}\tau^{\beta\alpha} +$	5
	$2 \eta^{\alpha\beta} \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial_{\chi} \tau^{\chi\delta} = 3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\alpha} \tau^{\beta\chi} + 3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\alpha} \tau^{\chi\beta} +$	
	$3\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau^{\alpha\chi} + 3\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\beta}\tau^{\chi\alpha} + 2\eta^{\alpha\beta}\partial_{\epsilon}\partial^{\epsilon}\partial_{\delta}\partial^{\delta}\tau^{\chi}_{\ \chi}$	
Total expected gauge generators: 25		

95	α α σ	
_	β + 6 β + 6 f α	#1 2 ⁺
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_	30a46 +4t ₂ a -t ₂ 0 8 r ₂ 0 abi - fi +6 i	#1 2
_	$ \begin{array}{lll} \mu_{\alpha} & -3 \\ \partial_{\theta} \mathcal{A}_{\beta} \\ \mu_{\alpha} & \partial^{\theta} \mathcal{F}_{\alpha} \end{array} $ $ \begin{array}{lll} \mu_{\alpha} & \partial^{\theta} \mathcal{A}_{\alpha} \\ \beta & \partial^{\theta} \mathcal{A}_{\alpha} \end{array} $ $ \begin{array}{lll} \alpha & \partial^{\phi} \mathcal{A}_{\alpha} \\ \alpha & \partial^{\phi} \mathcal{A}_{\alpha} \end{array} $	#5
_	$^{\theta}_{0} = ^{\theta} \mathcal{A}^{G}$ $^{\theta}_{1} = ^{\theta} \mathcal{A}^{G}$ $^{\theta}_{2} = ^{\theta} \mathcal{A}^{G}$ $^{\theta}_{3} = ^{\theta} \mathcal{A}^{G}$ $^{\theta}_{3} = ^{\theta} \mathcal{A}^{G}$ $^{\theta}_{4} = ^{\theta} \mathcal{A}^{G}$ $^{\theta}_{5} = ^{\theta} A$	#1
	$^{3}\partial_{\rho}\mathcal{A}_{\beta}$ $^{+6} r_{3}^{2}\hat{c}$ $^{,}\partial^{\theta}f^{\alpha l}$ $^{,}\partial^{\theta}f^{\alpha l}$ $^{,}\partial^{\mu} - 24$ $^{,}\partial^{\mu} - 4$	1#5
_	$a^{\beta} = -3$, $b^{\beta} = a^{\beta}$, $a^{\beta} =$, 1,
	== $ \int \partial_{\alpha} \partial_{\alpha} \partial_{\beta} \partial_{\alpha} \partial_{\beta} \partial_{\alpha} \partial_{\beta} \partial_{\alpha} \partial_{\beta} \partial_{\alpha} \partial_{\beta} $	#2 #1 #2
	13 0pA -3 13 0 2 0 0 f 0 + 0 9 f 0 10 + 4 1 10 + 2 1	++
	(abx^{-3}) (abx^{-3}) (abx^{-6}) (aab)	
	qαβχ (γ) qαβ	#5 +
	2 +6 5 2 +6 5 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 +	
_	tαβ tα	, +1 1 # 1
	$(\frac{1}{6}(6))$	#1
_	= S	

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708 (2, 2+5) (3, 2+5) (4, 2+5) (4, 2+5) (5, 2+5) (6, 0) (7, 0) (7, 0) (8, 1) (9, 1) (9, 1) (9, 1) (9, 1) (1, 1)	
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	0
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$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$0 \qquad \frac{1}{k^2 r_2 + t_2}$

Massive and massless spectra



Parity:	Spin:	Square mass:	Pole residue: -	Massive particle	
Odd	0	$-\frac{t_2}{r_2} > 0$	$\frac{1}{r_2} > 0$	ticle	.?

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₹ ()	◊.
$k^{\mu} = (\mathcal{E}, 0, 0, p)$	J.P
3,	P = 0-
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Massless particle

Pole residue: -	$\frac{1}{r_3(2r_3+r_5)(r_3+2r_5)p^2} > 0$
Polarisations:	2

Unitarity conditions