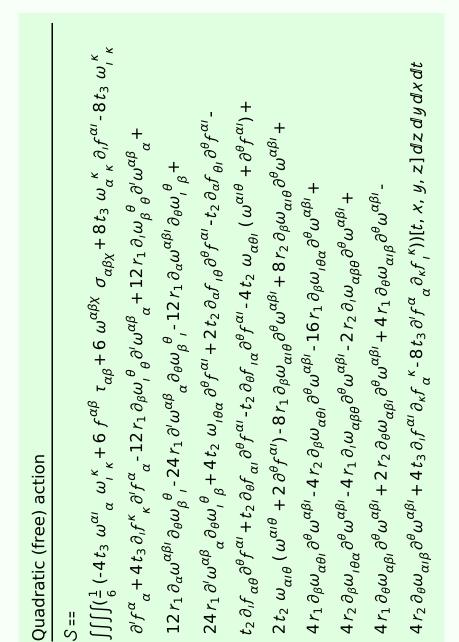
Particle spectrograph

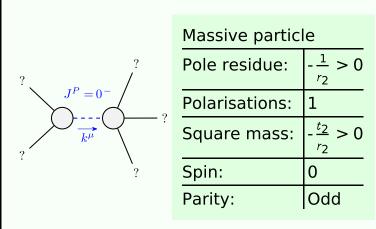
Wave operator and propagator



				7.	.2 <i>t</i> 3		3 1 ^t 3								
$\tau_{1^{-}}^{\#2}{}_{\alpha}$	0	0	0	$-\frac{2i}{kr_1+2k^3r_1}$	$\frac{i\sqrt{2}(3k^2r_{1}-2t_3)}{k(1+2k^2)^2r_1t_3}$	0	$\frac{6k^2r_{1}-4t_3}{(1+2k^2)^2r_1t_3}$	$f_{1^-}^{\#2} lpha$	0	0	0	$-\frac{2}{3}ikt_3$	$\frac{1}{3}$ i $\sqrt{2}$ kt_3	0	$\frac{2k^2t_3}{3}$
${\tau_1^{\#1}}_{\alpha}$	0	0	0	0	0	0	0	$f_{1^-}^{\#1} \alpha$	0	0	0	0	0	0	0
$\sigma_{1}^{\#2}{}_{\alpha}$	0	0	0	$-\frac{\sqrt{2}}{k^2 r_1 + 2k^4 r_1}$	$\frac{3k^2r_{1}-2t_3}{(k+2k^3)^2r_1t_3}$	0	$\frac{i\sqrt{2}(3k^2r_1-2t_3)}{k(1+2k^2)^2r_1t_3}$	$\omega_{1^{-}}^{\#2}{}_{\alpha}$	0	0	0	$-\frac{\sqrt{2}t_3}{3}$	ر ع ع	0	$-\frac{1}{3}\bar{l}\sqrt{2}kt_3$
$\sigma_{1^{-}\alpha}^{\#1}$	0	0	0	$-\frac{1}{k^2 r_1}$	$\frac{\sqrt{2}}{k^2 r_1 + 2k^4 r_1}$	0	$\frac{2i}{kr_1+2k^3r_1} -$	$\omega_{1^{\bar{-}}\alpha}^{\#1}$	0	0	0	$-k^2 r_1 + \frac{2t_3}{3}$	$-\frac{\sqrt{2}t_3}{3}$	0	2 i k t 3 3
$\tau_1^{\#1}{}_+\alpha\beta$	$\frac{3i\sqrt{2}k}{(3+k^2)^2t_2}$	$\frac{3 i k}{(3+k^2)^2 t_2}$	$\frac{3k^2}{(3+k^2)^2t_2}$	0	0	0	0	$f_1^{\#1}_{+\alpha\beta}$	$\frac{1}{3}\bar{l}\sqrt{2}kt_2$	<u>i kt2</u> 3	$\frac{k^2t_2}{3}$	0	0	0	0
$\sigma_1^{\#2}$	$\frac{3\sqrt{2}}{(3+k^2)^2t_2}$	$\frac{3}{(3+k^2)^2 t_2}$	$\frac{3ik}{(3+k^2)^2t_2}$	0	0	0	0	$\omega_1^{\#2}_+{}_{\alpha\beta}$	$\frac{\sqrt{2} t_2}{3}$	[2]	$-\frac{1}{3}$ ikt ₂	0	0	0	0
$\sigma_{1}^{\#1}{}_{\alpha\beta}$	$\frac{6}{(3+k^2)^2 t_2}$	$\frac{3\sqrt{2}}{(3+k^2)^2t_2}$	$-\frac{3i\sqrt{2}k}{(3+k^2)^2t_2}$	0	0	0	0	$\omega_{1}^{\#1}{}_{\alpha\beta}$	$\frac{2t_2}{3}$	$\frac{\sqrt{2}t_2}{3}$	$-\frac{1}{3}$ i $\sqrt{2}$ k t_2	0	0	0	0
	$\sigma_1^{\#1} + \alpha^{\beta}$	$\sigma_1^{\#_2} + \alpha \beta$	$\tau_1^{\#1} + \alpha \beta$	$\sigma_{1}^{\#_{1}} +^{lpha}$	$\sigma_{1}^{\#2} +^{lpha}$	$\tau_{1}^{\#1} +^{\alpha}$	$t_1^{\#2} + \alpha$		$\omega_1^{\#1} + \alpha^{eta}$	$\omega_1^{\#2} + \alpha^{\beta}$	$f_1^{\#1} \dagger^{\alpha\beta}$	$\omega_{1^{\text{-}}}^{\#1} +^{\alpha}$	$\omega_1^{\#2} +^{lpha}$	$f_{1}^{\#1} \dagger^{lpha}$	$f_{1}^{\#2} +^{\alpha}$

						ω_{2}^{*1}	$f_{2}^{\#1}$ $g_{3}^{\#1}$ $g_{3}^{\#1}$	ω_{2}^{*1}	3
Sour	ce constra	Source constraints/gauge generators	ger	erators	•	7 . "	dρ.7.d	αp 7	×□
SO(3	SO(3) irreps	Mult	Multiplicities	ities	$\omega_2^{\#1} +^{lphaeta}$	0	0	0	
$\tau_{0}^{#2} =$	0 ==	1			$f_{2}^{#1} + \alpha \beta$	0	0	0	
$\tau_{0}^{\#1}$ -	$-2ik\sigma_{0}^{\#1} ==$	0 1			$\omega_{2}^{#1} + \alpha \beta \chi$	0	0	$k^2 r_1$	
$\tau_1^{\#2\alpha}$	$+2ik\sigma_{1}^{\#2}\alpha$	2α == 0 3			, σ _.			1	
$t_1^{\#1}\alpha$	0 ==	Ж			$ au_{2}^{\#1}$ †				
$t_1^{\#1}\alpha\beta$	<u>i</u> +	$\alpha \beta == 0$ 3				αβ			
$\sigma_{1}^{\#1}{}^{\alpha\beta}$	$x\beta == \sigma_1^{\#2}\alpha\beta$	β 3			0	0	#1 2 ⁺ αβ		
$\tau_2^{#1}\alpha\beta$	0 == _θ ,	2			0	0	$ au_2^{\#1}$		
$\sigma_2^{\#1}\alpha\beta$	$0 == \theta_x$	2					$_{eta}$ $\sigma_{2}^{\#}$		
Tota	Total constraints:	ts: 24			$\frac{1}{2_{r_1}}$	0	1 αβχ		
	$\sigma_0^{\#1}$	$\tau_{0}^{\#1}$	$\tau_0^{\#2}$	$\sigma_{0^{\text{-}}}^{\#1}$		$\omega_{0}^{\#1}$	$f_0^{\#1}$	$f_{0}^{#2}$	
$\sigma_{0}^{\#1}$ \pm	$\frac{1}{(1+2)^2 1^2 t_2}$	- 1 VZ K	0	0	Ļ	t_3	-i $\sqrt{2} kt_3$	3 0	
- #	1 1 2 K	$2k^2$			<u> </u>	$\sqrt{2} kt_3$	$2 k^2 t_3$	0	
τ <u>"</u> + Τ	$(1+2k^2)^2t_3$	$(1+2k^2)^2t_3$	0	0	f ₀ ^{#2} †	0	0	0	
$\tau_{0}^{\#2}$ †	0	0	0	0	$\omega_{0^-}^{\#1} \dagger$	0	0	0	`~
$\sigma_{0}^{\#1}\dagger$	0	0	0	$\frac{1}{k^2 r_2 + t_2}$					

Massive and massless spectra



(No massless particles)

Unitarity	conditions

 $r_2 < 0 \&\& t_2 > 0$