Particle spectrograph

Wave operator and propagator

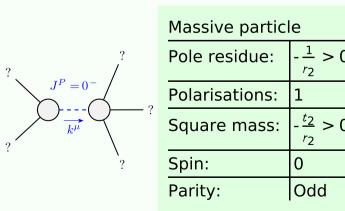
$\begin{aligned} & \int_{\mathbb{R}^{3}} \frac{1}{2} - 2 i k O_{q_{1}}^{\# 2} = 0 & \partial_{\mu} \partial_{\mu} r^{\alpha \beta} = 0 \partial_{\mu} \partial_{\mu} r^{\alpha} + 2 \partial_{\mu} \partial_{\mu} \partial_{\mu} \sigma^{\alpha \beta} \\ & \int_{\mathbb{R}^{3}} \frac{1}{2} - i k O_{q_{1}}^{\# 2} r^{\alpha} = 0 & \partial_{\mu} \partial_{\mu} r^{\alpha \beta} = 0 \partial_{\mu} \partial_{\mu} r^{\alpha} + 2 \partial_{\mu} \partial_{\nu} \partial_{\mu} \partial^{\alpha \beta} \\ & \int_{\mathbb{R}^{3}} \frac{1}{2} - i k O_{q_{1}}^{\# 2} r^{\alpha} = 0 & \partial_{\mu} \partial_{\mu} r^{\alpha \beta} + \partial_{\nu} \partial^{\alpha} \partial_{\mu} \partial^{\alpha \beta} r^{\alpha \beta} + \partial_{\nu} \partial^{\alpha} \partial^{\alpha} \partial^{\beta} r^{\alpha \beta} \\ & \int_{\mathbb{R}^{3}} \frac{1}{1} r^{\alpha} = 0 & \partial_{\lambda} \partial_{\mu} r^{\alpha \beta} r^{\beta \beta} + \partial_{\nu} \partial^{\alpha} \partial^{\alpha} \partial^{\beta} r^{\beta \beta} \\ & \int_{\mathbb{R}^{3}} \frac{1}{1} r^{\alpha} = 0 & \partial_{\lambda} \partial_{\mu} r^{\beta \beta} r^{\beta \beta} + \partial_{\lambda} \partial^{\alpha} \partial^{\alpha} \partial^{\beta} r^{\beta \beta} \\ & \int_{\mathbb{R}^{3}} \frac{1}{1} r^{\alpha} = 0 & \partial_{\lambda} \partial^{\alpha} r^{\beta \beta} r^{\beta \beta} + \partial_{\lambda} \partial^{\alpha} r^{\alpha \beta} r^{\beta \beta} \\ & \int_{\mathbb{R}^{3}} \frac{1}{1} r^{\beta} r^{\beta} + i k O_{q_{1}}^{\# 2} r^{\beta} = 0 & \partial_{\lambda} \partial^{\alpha} r^{\beta \beta} r^{\beta \beta} r^{\alpha \beta} + \partial_{\lambda} \partial^{\alpha} r^{\beta \beta} r^{\beta \beta} \\ & \int_{\mathbb{R}^{3}} \frac{1}{1} r^{\beta} r^{\beta} r^{\beta} = 0 & \partial_{\lambda} \partial^{\alpha} r^{\beta \beta} r^{\beta \beta} r^{\beta \beta} r^{\alpha \beta} r^{\beta \beta} r^{\beta \beta} r^{\alpha \beta} \\ & \int_{\mathbb{R}^{3}} \frac{1}{1} r^{\beta} r$	$a + 2 \partial_{x} \partial^{x} \partial_{\beta} \sigma^{\alpha \beta}$ $a + 2 \partial_{x} \partial^{x} \partial_{\beta} \sigma^{\alpha \beta}$ $b + 2 \partial_{x} \partial^{x} \partial^$
$k \frac{\sigma_{0+}^{\#1}}{\sigma_{0+}^{\#1}} = 0$ $k \frac{\sigma_{1-}^{\#1}}{\sigma_{1-}^{\#2}} = 0$ 0 0 0 0 0 0 0 0 0	$ \frac{\sigma^{\alpha\beta}}{\chi^{\alpha}} \frac{\sigma^{\alpha\beta}}{\sigma^{\alpha\beta}} + \frac{\sigma^{\alpha\beta}}{\sigma^{\alpha\beta}} $ $ \frac{\sigma^{\alpha\beta}}{\sigma^{\alpha\beta}} = \sigma^$
$k \frac{\sigma_{0+}^{\#1} == 0}{k \sigma_{1-}^{\#1} \alpha} == 0$ 0 $2 \frac{\sigma_{1-}^{\#2} \alpha}{1 + \alpha} == 0$ $= 0$ $= 0$	$ \frac{\sigma^{\alpha\beta}}{\sigma^{\alpha\beta}} $ $ \frac{\sigma^{\alpha\beta}}{\sigma^{\alpha\beta}} $ $ \frac{\sigma^{\alpha\beta\chi}}{\sigma^{\alpha\beta\chi}} = = \frac{\sigma^{\alpha\beta\chi}}{\sigma^{\alpha\beta\chi}} $
$k \ \sigma_{1}^{\#1}\alpha == 0$ 0 $2 \ \sigma_{1}^{\#2}\alpha == 0$ $= 0$ $= 0$	$\int_{\alpha} \frac{\partial^{2} \partial_{\beta} \tau^{\alpha \beta} +}{\sigma^{\alpha \beta \chi}}$ $\int_{\alpha} \frac{\partial^{2} \beta}{\partial x^{\alpha \beta \chi}}$
$\begin{array}{c c} 0 & \partial_{x}\partial_{\beta} \\ 2 & \sigma_{1}^{\#2}\alpha = 0 & \partial_{x}\partial^{\alpha} \\ \vdots & k & \sigma_{1}^{\#2}\alpha\beta = 0 & \partial_{x}\partial^{\alpha} \\ == 0 & 3 & \delta_{\epsilon}(\alpha) \\ == 0 & 4 & \delta_{\delta}(\alpha) \\ == 0 & 4 & \delta_{\delta}(\alpha) \\ == 0 & 4 & \delta_{\delta}(\alpha) \\ == 0 & 3 & \delta_{\epsilon}(\alpha) \\ == 0 & 4 & \delta_{\delta}(\alpha) \\ == 0 & 4 $	$ \frac{\partial^2 \alpha}{\partial \alpha^{\beta \chi}} $ $ \frac{\partial^2 \alpha}{\partial \alpha^{\beta \chi}} = = \frac{\partial^2 \alpha}{\partial \alpha^{\beta \chi}} $
$ \begin{array}{c c} 0 & \partial_{x}\partial_{\beta} \\ 2 & \sigma_{1}^{\#2}\alpha = 0 & \partial_{x}\partial^{\alpha} \\ \hline i k & \sigma_{1}^{\#2}\alpha\beta = 0 & \partial_{x}\partial^{\alpha} \\ = 0 & 3 & \partial_{\epsilon}(\alpha) \end{array} $ $ \begin{array}{c c} 3 & \alpha & \beta & \beta$	$\sigma^{\alpha\beta\chi}$ $\alpha^{\alpha\beta\chi}$ $\alpha^{\alpha\beta\chi}$ ==
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$a \beta \chi$ $a \beta \chi$
$i k \sigma_{1}^{\#2} \alpha \beta == 0 \partial_{\chi} \partial_{\alpha}$ $== 0 3 \partial_{\varepsilon} \zeta$ $= 0 4 \partial_{\delta} \zeta$	αβχ ==
==0 $= 0$ $= 0$ $= 0$ $= 0$	$2 \partial_{\kappa} \partial^{\delta} \partial_{\nu} \sigma^{\alpha \beta \chi} = =$
$= 0$ $= 0$ $+ \frac{\partial_x}{\partial \xi}$ $= 0$	
$==0$ $3 \frac{3}{3} \frac{1}{3} \frac{1}$	+
== 0 3 8 _e ¢	$\langle \partial^{\beta} \sigma^{\alpha \chi \delta} \rangle$
36 4 96	$_{\epsilon}\partial^{\epsilon}\partial^{\chi}\partial^{\alpha}\sigma^{\beta\delta}{}_{\delta}+$ 5
3.6 == 0 4 9.6 3.6	$2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\beta} \sigma^{\alpha \chi \delta} + 4 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\beta} \sigma^{\alpha \delta \chi} +$
36 4 966	$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} + $
3.6 == 0 3.6 3.6	$2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\chi} \sigma^{\alpha \delta \beta} + 2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\delta} \sigma^{\beta \chi \alpha} +$
36 4 966	$\sigma^{\delta \epsilon}_{\delta}$ +
3 c = 0 4 9 o d	$\sigma^{\beta\delta\epsilon}$ +
36 == 0 4 006	$\tau^{\alpha\delta}_{\delta} = =$
$==0$ $4 \partial_{\delta} \dot{\delta}$ $3 \dot{\delta}$	$3 \partial_{\epsilon} \partial^{\epsilon} \partial^{\chi} \partial^{\beta} \sigma^{\alpha \delta}_{\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $
$==0$ $4 \partial_{\delta} \dot{\delta}$	$2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\alpha} \sigma^{\beta \chi \delta} + 4 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\alpha} \sigma^{\beta \delta \chi} +$
== 0 4 0 _o ć	$2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\alpha} \sigma^{\chi \delta \beta} + 2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\chi} \sigma^{\beta \delta \alpha} +$
$==0 4 \partial_{\delta} \dot{\delta}$	$4 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\delta} \sigma^{\alpha \beta \chi} + 2 \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\delta} \sigma^{\alpha \chi \beta} +$
== 0 4 ∂_{δ}	$\sigma^{\delta \epsilon}_{\delta} +$
== 0 4 0 ₀ ¢	$\sigma^{a\delta\epsilon}$ +
$= 0 \qquad 4 \partial_{\delta} \dot{\delta}$	$\sigma^{eta \delta}$
$3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\chi} \tau^{\alpha \beta} + 3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\chi} \tau^{\alpha \beta} + 3 \partial_{\delta} \partial_{\zeta} \partial^{\chi} \tau^{\alpha \beta} + 3 \partial_{\delta} \partial_{\zeta} \partial^{\chi} \tau^{\alpha \beta} + 3 \partial_{\delta} \partial_{\zeta} \partial^{\chi} \partial^$	$\partial^{\delta}\partial^{\beta}\partial^{\alpha} t^{\chi}_{\chi} + $ 5
$2 \eta^{\alpha\beta} \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial_{\chi} t^{\chi \delta}$ $3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\alpha} t^{\beta \chi} + 3 \partial_{\delta} \dot{\delta}$	$3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\chi} \tau^{\beta \alpha} +$
$3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\alpha} t^{\beta \chi} + 3 \partial_{\delta} (\partial_{\delta} \partial_{\lambda} \partial^{\alpha} t^{\beta \chi} + \partial_{\delta} \partial_{$	×δ ==
	$\partial_{\delta}\partial^{\delta}\partial_{\chi}\partial^{\alpha}\tau^{\chi\beta}$ +
$3 \partial_{\delta} \partial_{\delta} \partial_{\chi} \partial^{\beta} \iota^{\alpha \chi} + 3 \partial_{\delta} \partial_{\delta} \partial_{\chi} \partial^{\beta} \iota^{\chi \alpha} +$	$3 \partial_{\delta} \partial^{\delta} \partial_{\chi} \partial^{\beta} t^{\chi \alpha} +$
$2 \eta^{\alpha\beta} \partial_{\epsilon} \partial^{\epsilon} \partial_{\delta} \partial^{\delta} \tau^{X}_{X}$	**

ee) action		$\iiint (\frac{1}{6} (-4t_3 \mathcal{A}^{\alpha_{l}} \mathcal{A}^{\theta}_{\alpha} + 6 f^{\alpha\beta} \tau_{\alpha\beta} + 6 \mathcal{A}^{\alpha\beta\chi} \sigma_{\alpha\beta\chi} + 8t_3 \mathcal{A}^{\theta}_{\alpha\theta} \partial_{l} f^{\alpha\prime} - 8t_3$	$\mathcal{R}_{,\ \theta}^{\ \theta}\partial'f^{lpha}_{\ \ \alpha}+4t_3\partial_if^{eta}_{\ \ \ eta}\partial'f^{lpha}_{\ \ \ \ \ \ \ \ }-6r_3\partial_eta\mathcal{R}_{,\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	$4t_3\partial_{\scriptscriptstyle j} f^{\alpha\prime}\partial_{\theta} f_{\alpha}^{\theta} - 8t_3\partial^{\prime} f^{\alpha}_{\alpha}\partial_{\theta} f_{}^{\theta} - 6r_3\partial_{\alpha} \mathcal{A}^{\alpha\beta\prime}\partial_{\theta} \mathcal{A}_{\scriptscriptstyle j}^{\theta} +$	$12r_3\partial'\mathcal{R}^{lphaeta}_{\ \ lpha}\partial_{ heta}\mathcal{R}'_{\ \ eta}^{\ \ eta}+4t_2\mathcal{R}_{\prime etalpha}\partial^{ heta}f^{lpha\prime}+2t_2\partial_{lpha}f_{ \prime eta}$	$\partial^{ heta}f^{lpha_{\prime}}$ - t_{2} $\partial_{lpha}f_{eta_{\prime}}$ $\partial^{ heta}f^{lpha_{\prime}}$ - t_{2} $\partial_{\prime}f^{lpha_{\prime}}$ $\partial^{ heta}f^{lpha_{\prime}}$ $\partial^{ heta}f^{lpha_{\prime}}$ -	$t_2\partial_ heta f_{ lpha}\partial^ heta f^{lpha\prime}$ - $4t_2{\mathcal F}_{lpha heta\prime}$ (${\mathcal F}^{lpha\prime}$ $+\partial^ heta f^{lpha\prime}$) $+$	$2t_2\mathcal{A}_{lpha_{I} heta}(\mathcal{A}^{lpha_{I} heta}+2\partial^{ heta}f^{lpha_{I}})+8r_2\partial_{eta}\mathcal{A}_{lpha_{I} heta}\partial^{ heta}\mathcal{A}^{lphaeta_{I}}$ -	$4r_2\partial_{eta}\mathcal{R}_{lpha heta_1}\partial^{ heta}\mathcal{R}^{lphaeta_1}+4r_2\partial_{eta}\mathcal{H}_{1etalpha}\partial^{ heta}\mathcal{R}^{lphaeta_1}$ - $24r_3\partial_{eta}\mathcal{H}_{1etalpha}$	$\partial^{ heta}\mathcal{A}^{lphaeta_{\prime}}$ - $2r_{2}\partial_{arphi}\mathcal{A}_{lphaeta_{ heta}}\partial^{ heta}\mathcal{A}^{lphaeta_{\prime}}+2r_{2}\partial_{ heta}\mathcal{A}_{lphaeta_{\prime}}\partial^{ heta}\mathcal{A}^{lphaeta_{\prime}}$ -	$4r_2\partial_ heta \mathcal{R}_{lpha ert eta})[t,ec x, y, z]d\!\!/ zd\!\!/ yd\!\!/ xd\!\!/ t$	1 #1 #2 #1 #1 #2 #1
Quadratic (free) action	S==	$\iiint \iiint (rac{1}{6} \ (-4 t_3 \mathcal{A}^{lpha\prime} \ \)$										t#17

$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ au_{1}^{\#2}$	0	0	0	6 i k (3+2 k ²)	$3i\sqrt{2}k$ (3+2 k^2) ²	0	$6k^2$ (3+2 k^2) ²									
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ au_{1^-}^{\#1} lpha$	0	0	0	i		0		$f_{1^-}^{\#2} \alpha$	0	0	0	$-\frac{2}{3}ikt_3$	ĭ √2 kt3	0	$\frac{2k^2t_3}{3}$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\sigma_{1^{-}\alpha}^{\#2}$	0	0	0	$\frac{3\sqrt{2}}{1+2k^2)^2t_3}$	$\frac{3}{+2k^2)^2t_3}$	0	$3i\sqrt{2}k$ $1+2k^2)^2t_3$	$f_{1}^{\#1}$	0	0	0	0	3 11	0		
$ \frac{1}{3} \frac{1}{4} \alpha \beta \qquad O_{1}^{\#2} \alpha \beta \qquad \Gamma_{1}^{\#1} \alpha \beta $	$\sigma_{1}^{\#1}$	0	0	0	ı		0	ı	${\mathscr A}_{1^{\bar{-}}\alpha}^{\#2}$	0	0	0	$-\frac{\sqrt{2}t_3}{3}$	n [7]	0	$\frac{1}{3}\bar{l}\sqrt{2}kt_3$	
$ \frac{1}{3k^2r_3} \qquad \frac{2^{\#2}}{3k^2r_3} \qquad \frac{r_1^{\#2}}{3k^2r_3} \qquad \frac{r_1^{\#2}}{3k^2r_3} \qquad \frac{r_1^{\#1}}{3k^2r_3+3k^4r_3} \qquad \frac{r_1^{\#1}}{3k^2r_3+3k^4r_3} \qquad \frac{r_2\sqrt{2}}{3k^2r_3+3k^4r_3} \qquad \frac{r_2\sqrt{2}}{3k^2r_3+3k^4r_3} \qquad \frac{r_1(9k^2r_3+4t_2)}{3k^2r_3+3k^4r_3} \qquad \frac{r_1(9k^2r_3+4t_2)}{3k^2r_3+3k^2r_3} \qquad \frac{r_1(9k^2r_3+4t_2)}{3k^2r_3+3k^2r_3} \qquad \frac{r_1(9k^2r_3+4t_2)}{3k^2r_3+3k^2r_3} \qquad \frac{r_1(9k^2r_3+4t_2)}{3k^2r_3+3k^2r_3} \qquad \frac{r_1(9k^2r_3+4t_2)}{3k^2r_3+4t_2} \qquad \frac{r_1(9k^2r_3+4t_2)}{3k^2r_3+4t_2} \qquad 0 \qquad $)	73	2) ; t2	$\frac{2}{t_2}$	(3+	- (3+		(3+	$\mathcal{A}_{1}^{\#1}$	0	0	0	2 <i>t</i> ₃	$\sqrt{2} t_3$	0	2 i k t 3 -	
$ \frac{\sigma_{1}^{\#1} a \beta}{3k^{2} r_{3}} \qquad \frac{\sigma_{1}^{\#2} a \beta}{3k^{2} r_{3}} \qquad \frac{\sigma_{1}^{\#2} a \beta}{3k^{2} r_{3} + 4r_{2}} \\ \frac{2 \sqrt{2}}{3k^{2} r_{3}} \qquad -\frac{2 \sqrt{2}}{3k^{2} r_{3} + 3k^{4} r_{3}} \\ \frac{2 \sqrt{2}}{3k^{2} r_{3} + 3k^{4} r_{3}} \qquad \frac{9 k^{2} r_{3} + 4r_{2}}{3(k+k^{3})^{2} r_{3} t_{2}} \\ \frac{2 i \sqrt{2}}{3k^{2} r_{3} + 3k^{4} r_{3}} \qquad \frac{9 k^{2} r_{3} + 4r_{2}}{3(k+k^{2})^{2} r_{3} t_{2}} \\ 0 \qquad 0 \qquad 0 \\ \frac{1}{6} (9 k^{2} r_{3} + 4 t_{2}) \qquad \frac{\sqrt{2} t_{2}}{3} \qquad \frac{1}{3} \\ \frac{1}{6} (9 k^{2} r_{3} + 4 t_{2}) \qquad \frac{\sqrt{2} t_{2}}{3} \qquad \frac{1}{3} \\ \frac{\sqrt{2} t_{2}}{3} \qquad \frac{\sqrt{2} t_{2}}{3} \qquad \frac{t_{2}}{3} \qquad \frac{1}{3} \\ 0 \qquad 0 \qquad 0 \\ $	$\tau_{1}^{\#1}{}_{\alpha\beta}$	$-\frac{2i\sqrt{2}}{3kr_3+3k^3}$	$\frac{i(9k^2r_3+4t)}{3k(1+k^2)^2r_3}$	$\frac{9k^2r_3+4t_2}{3(1+k^2)^2r_3}$	0	0	0	0		$\sqrt{2} kt_2$	<i>i kt</i> 2 3	$\frac{k^2t_2}{3}$	0	0	0		\mathcal{A}_2^{\dagger}
$ \frac{\sigma_{1}^{\#1} \alpha_{\beta}}{\frac{2}{3k^{2} r_{3}}} $ $ \frac{2}{3k^{2} r_{3}} $ $ \frac{2}{\sqrt{2}} $ $ \frac{2\sqrt{2}}{3k^{2} r_{3} + 3k^{4} r_{3}} $ $ 0 $ $ 0 $ $ 0 $ $ 0 $ $ \frac{1}{6} (9k^{2} r_{3} + 4t t t t t t t t t t t t t t t t t t $	$\sigma_{1}^{\#2}$	$\begin{array}{c c} 2\sqrt{2} \\ 2r_3 + 3k^4r_3 \end{array}$	$\frac{k^2 r_3 + 4t_2}{(+k^3)^2 r_3 t_2}$	$\frac{9k^2r_3+4t_2)}{(1+k^2)^2r_3t_2}$	0	0	0	0	${\mathscr A}_1^{\#_2^2}$	H W	3 3 s	$-\frac{1}{3}$ \vec{l} kt_2	0	0	0	0	f 2
	$_{1}^{*1}$	ì		I	0	0	0	0	${\cal A}_{1}^{\#1}$	$k^2 r_3 + 4 t_2$	$\frac{\sqrt{2}t_2}{3}$	$i\sqrt{2}kt_2$	0	0	0	0	$\sigma_{0^+}^{\#1}$
	Ъ	$\frac{\#1}{1^+} + \alpha \beta$	$^{#2}_{1}$ $+^{\alpha\beta}$ $-{3k^2}$	$_{1}^{\#1} + ^{\alpha\beta} \frac{2}{3^{kr_3}}$	$\sigma_{1}^{\#1} + ^{lpha}$	$\sigma_1^{\#2} + \alpha$	$\tau_{1}^{\#1} + ^{\alpha}$	$\tau_1^{\#2} + \alpha$		$\binom{\#1}{1} + \alpha \beta = \frac{1}{6} (9)$	$4^{#2}_{1} + \alpha \beta$	$r_{1}^{\#1} + \alpha \beta - \frac{1}{3}$	$\mathcal{A}_{1}^{\#1} +^{\alpha}$	$\mathcal{A}_{1}^{\#2} + \alpha$	$f_{1}^{#1} + \alpha$	$f_1^{#2} + \alpha$	$ au_0^{\#1}$ $ au_0^{\#2}$ $ au_0^{\#1}$

0	0	0	0	0	0	0								
0	0	0	$-\frac{\sqrt{2} t_3}{3}$	٤ 3	0	$-\frac{1}{3}\bar{l}\sqrt{2}kt_3$							$\sigma_{2}^{\#1}$ †'	αβ
0	0	0	$\frac{2t_3}{3}$	$-\frac{\sqrt{2}t_3}{3}$	0	<u>2 i k t 3</u> 3			" 7	<i>u</i> 2			$\tau_{2+}^{#1} + 0$	
t_2									$\mathcal{A}_{2}^{\#1}{}_{lphaeta}$	$f_{2+\alpha\beta}^{\#1}$	$\mathcal{A}_{2}^{\#1}$	αβχ	$\sigma_2^{\#1} \dagger^{\alpha_1}$	PX
$\frac{\pm}{3}$ i $\sqrt{2}$ kt ₂	$\frac{ikt_2}{3}$	$\frac{k^2t_2}{3}$	0	0	0	0	$\mathcal{A}_{2}^{\#1}$ †	_αβ	$-\frac{3k^2r_3}{2}$	0	C)		
11 M		5					$f_{2^{+}}^{#1}$ †	_αβ	0	0	C)		•
3	t 2 3	$-\frac{1}{3}$	0	0	0	0	$\mathcal{A}_{2}^{\#1}$ † $^{'}$		0	0	C)		(
· t ₂)		.2							$\sigma_{0}^{\#1}$	$ au_{0}^{\#1}$		$ au_{0}^{\#2}$	$\sigma_{0}^{\#1}$	_
$\mathcal{A}_{1}^{*+} + \tau^{\mu \rho} = (9 k^2 r_3 + 4 t_2)$	$\frac{\sqrt{2} t_2}{3}$	$i\sqrt{2} kt_2$	0	0	0	0	$\sigma_{0^{+}}^{*1}$ †		$\frac{1}{2k^2)^2t_3}$	$-\frac{i\sqrt{2}}{(1+2k^2)}$	$\frac{k}{r^2t_3}$	0	0	#
γ6) ÷		-13					$ au_{0}^{\#1}$ †	<u>i</u> (1+)	$\frac{\sqrt{2} k}{2 k^2)^2 t_3}$	$\frac{2k^2}{(1+2k^2)}$	$\frac{10^{2} t_{3}}{10^{2} t_{3}}$	0	0	١#-
+- 3	$+^{\alpha\beta}$	$+^{\alpha\beta}$	$_{1}+_{\alpha}$	2 $^{+}$	$f_{1^{\bar{-}}}^{\#1} \dagger^{\alpha}$	$f_1^{\#2} +^{\alpha}$	$\tau_{0^{+}}^{#2}$ †		0	0		0	0	
$\mathcal{L}_{1+}^{\sharp}$	$\mathcal{A}_1^{\#_2} + ^{lphaeta}$	$f_1^{#1} + ^{\alpha \beta}$	$\mathcal{A}_{1^{\text{-}}}^{\#_1} \dagger^{\alpha}$	$\mathcal{A}_{1}^{\#2} +^{lpha}$	f_1^*	$f_{1}^{\#}$	$\sigma_0^{\!\#1}$ †		0	0		0	$\frac{1}{k^2 r_2 + t_2}$	
							_							

Massive and massless spectra



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

Unitarity conditions