



	$\sigma_{0}^{\#1}$	$ au_0^{\#1}$	$ au_{0}^{\#2}$	$\sigma_{0}^{\sharp.1}$
$\sigma_{0^{+}}^{#1}$ †	$-\frac{4 \beta_2}{\alpha_0^2 + 2 \alpha_0 \beta_2 - 4 (\alpha_4 + \alpha_6) \beta_2 k^2}$	$\frac{i\sqrt{2}(\alpha_0+2\beta_2)}{-\alpha_0(\alpha_0+2\beta_2)k+4(\alpha_4+\alpha_6)\beta_2k^3}$	0	0
$ au_{0}^{\#1}$ †	_	00	0	0
$\tau_{0}^{\#2}$ †	0	0	0	0
$\sigma_{0}^{\#1}$ †	0	0	0	$\frac{2}{\alpha_0 + 8\beta_3 + 2(\alpha_2 + \alpha_3)k^2}$

$\sigma_{2^{+}}^{\#1} \dagger^{\alpha\beta} = \frac{16\beta_{1}}{-\alpha_{0}^{2} + 4\alpha_{0}\beta_{1} + 16(\alpha_{1} + \alpha_{4})\beta_{1}k^{2}} = \frac{2i\sqrt{2}(\alpha_{0} - 4\beta_{1})}{\alpha_{0}(\alpha_{0} - 4\beta_{1})k - 16(\alpha_{1} + \alpha_{4})\beta_{1}k^{3}} = 0$	
$\tau_{2}^{\#1} + \alpha \beta - \frac{2 i \sqrt{2} (\alpha_{0} - 4 \beta_{1})}{\alpha_{0} (\alpha_{0} - 4 \beta_{1}) k - 16 (\alpha_{1} + \alpha_{4}) \beta_{1} k^{3}} \frac{2 (\alpha_{0} - 4 (\beta_{1} + (\alpha_{1} + \alpha_{4}) k^{2}))}{k^{2} (\alpha_{0}^{2} - 4 \alpha_{0} \beta_{1} - 16 (\alpha_{1} + \alpha_{4}) \beta_{1} k^{2})} $	
$\sigma_{2}^{\#1} \dagger^{\alpha\beta\chi} \qquad \qquad 0 \qquad \qquad \frac{1}{\frac{\alpha_0}{4} + \beta_1 + (\alpha_1 + \alpha_2)}$,2

Total #:	$\tau_{1+}^{\#1\alpha\beta} + i k \sigma_{1+}^{\#2\alpha\beta} == 0$	$\tau_{1}^{\#1\alpha} == 0$	$t_{1}^{\#2\alpha} + 2 i k \sigma_{1}^{\#2\alpha} == 0$	$\tau_{0+}^{\#2} == 0$	SO(3) irreps	Source constraints	
10	3	3	3	1	#		

 $+\beta_1+(\alpha_1+\alpha_4)k^2$

0

0

0

 $+\beta_1+(\alpha_1+\alpha_2)k^2$

 $2 \beta_1 k^2$

0

$\omega_{0^{-}}^{*1}$ †	$f_{0+}^{#2}$ †	$f_{0+}^{#1}$ †	$\omega_{0^+}^{*1}\dagger$	
0	0	$\frac{i(\alpha_0+2\beta_2)k}{\sqrt{2}}$	$\left(\frac{\alpha_0}{2} + \beta_2 + (\alpha_4 + \alpha_6) k^2\right) - \frac{i(\alpha_0 + 2\beta_2)k}{\sqrt{2}}$	$\omega_{0}^{*}{}^{+}$
0	0	$2 \beta_2 k^2$	$-\frac{i(\alpha_0+2\beta_2)k}{\sqrt{2}}$	f_{0+}^{*1}
0	0	0	0	$f_{0+}^{\#2}$
$\frac{\alpha_0}{2} + 4 \beta_3 + (\alpha_2 + \alpha_3) k^2$	0	0	0	ω_{0}^{*1}

	$\omega_{\mathtt{1}^{+}lphaeta}^{\mathtt{\#1}}$	$\omega_{1^{+}lphaeta}^{ ext{#2}}$	$f_{1}^{\#1}{}_{\alpha\beta}$	$\omega_1^{\sharp 1}{}_{lpha}$	$\omega_1^{\#2}{}_{lpha}$	$f_{1-\alpha}^{\#1}$	$f_{1-\alpha}^{#2}$
$\omega_{1}^{\#1} \dagger^{lphaeta}$	$\frac{\alpha_0}{4} + \frac{1}{3} (\beta_1 + 8 \beta_3) + (\alpha_2 + \alpha_5) k^2$	$\frac{3 \alpha_0 - 4 \beta_1 + 16 \beta_3}{6 \sqrt{2}}$	$\frac{i(3\alpha_0-4\beta_1+16\beta_3)k}{6\sqrt{2}}$	0	0	0	0
$\omega_{1}^{\#2} \dagger^{\alpha\beta}$	$\frac{3 \alpha_0 - 4 \beta_1 + 16 \beta_3}{6 \sqrt{2}}$	$\frac{2}{3}\left(\beta_1+2\beta_3\right)$	$\frac{2}{3}i(\beta_1+2\beta_3)k$	0	0	0	0
$f_{1}^{#1} \dagger^{\alpha\beta}$	$-\frac{i(3\alpha_0-4\beta_1+16\beta_3)k}{6\sqrt{2}}$	$-\frac{2}{3}i(\beta_1+2\beta_3)k$	$\frac{2}{3}(\beta_1 + 2\beta_3)k^2$	0	0	0	0
$\omega_1^{\#1}$ † lpha	0	0	0	$\frac{\alpha_0}{4} + \frac{1}{3} (\beta_1 + 2 \beta_2) + (\alpha_4 + \alpha_5) k^2$	$-\frac{3 \alpha_0 - 4 \beta_1 + 4 \beta_2}{6 \sqrt{2}}$	0	$-\frac{1}{6}i(3\alpha_0-4\beta_1+4\beta_2)k$
$\omega_1^{\#2} \dagger^{lpha}$	0	0	0	$-\frac{3 \alpha_0 - 4 \beta_1 + 4 \beta_2}{6 \sqrt{2}}$	$\frac{1}{3}\left(2\beta_1+\beta_2\right)$	0	$\frac{1}{3} i \sqrt{2} (2 \beta_1 + \beta_2) k$
$f_{1}^{#1} \dagger^{\alpha}$	0	0	0	0	0	0	0
$f_1^{#2} \dagger^{\alpha}$	0	0	0	$\frac{1}{6} i (3 \alpha_0 - 4 \beta_1 + 4 \beta_2) k$	$-\frac{1}{3}\bar{l}\sqrt{2}(2\beta_1+\beta_2)k$	0	$\frac{2}{3} (2 \beta_1 + \beta_2) k^2$

Parity:	Spin:	Square mass:	Polarisations:	Pole residue:	Massive particle	$ \begin{array}{cccc} ? & & & & \\ & & & & \\ ? & & & \\ ? & & & & \\ ? & & \\ ? & & \\ \end{cases}$
Even	1	$\frac{3(\alpha_0 - 4\beta_1)(\alpha_0 + 8\beta_3)}{16(\alpha_2 + \alpha_5)(\beta_1 + 2\beta_3)} > 0$	3	$(3 (\alpha_0^2 (3 \alpha_2 + 3 \alpha_5 + 2 \beta_1 + 4 \beta_3) - (3 (\alpha_0^2 (3 \alpha_2 + 3 \alpha_5 + 2 \beta_1 + 4 \beta_3) - 4 \beta_3^2) + (3 (\alpha_0^2 (\beta_1^2 + \alpha_2 (\beta_1 - 4 \beta_3) + \alpha_5 (\beta_1 - 4 \beta_3) - 4 \beta_3^2) + (3 (\alpha_1^2 + \alpha_2 (\beta_1^2 + 2 \beta_3) + \alpha_2 (\beta_1^2 + 8 \beta_3^2) + \alpha_5 (\beta_1^2 + 8 \beta_3^2))))))))))))))))))))))))))))))))))))$	le	

Odd	Parity:
1	Spin:
$\frac{3(\alpha_0 - 4\beta_1)(\alpha_0 + 2\beta_2)}{8(\alpha_4 + \alpha_5)(2\beta_1 + \beta_2)} > 0$	Square mass:
	Polarisations:
$(2 (\alpha_4 + \alpha_5) (2 \beta_1 + \beta_2) (3 \alpha_0^2 + 6 \alpha_0 (-2 \beta_1 + \beta_2) + 4 (2 \alpha_5 \beta_1 + \alpha_5 \beta_2 - 6 \beta_1 \beta_2 + \alpha_4 (2 \beta_1 + \beta_2))))) > 0$	
$4 \alpha_0 (-2 \alpha_4 \beta_1 - 2 \alpha_5 \beta_1 - 4 \beta_1^2 + 2 \alpha_4 \beta_2 + 2 \alpha_5 \beta_2 + \beta_2^2) + \\ 8 (-2 \beta_1 \beta_2 (2 \beta_1 + \beta_2) + \alpha_4 (2 \beta_1^2 + \beta_2^2) + \alpha_5 (2 \beta_1^2 + \beta_2^2)))))/$	
$-((3(\alpha_0^2(3\alpha_4+3\alpha_5+4\beta_1+2\beta_2)+$	Pole residue:
cle	Massive particle
	; Kr
	$\frac{?}{?} I^P = 1$

	?	k^{μ}		$/+6 = dI$ \dot{c}		?	k^{μ}		$J_D = 0 + \zeta$		
Parity:	Spin:	Square mass:	Polarisations:	Pole residue:	Massive particle	Parity:	Spin:	Square mass:	Polarisations:	Pole residue:	
Even	2	$\frac{\alpha_0 (\alpha_0^{-4} \beta_1)}{16 (\alpha_1 + \alpha_4) \beta_1} > 0$	5	$-\frac{2}{\alpha_0} + \frac{\alpha_1 + \alpha_4 + 2\beta_1}{2\alpha_1\beta_1 + 2\alpha_4\beta_1} > 0$	le	Even	0	$\frac{\alpha_0 (\alpha_0 + 2\beta_2)}{4 (\alpha_4 + \alpha_6) \beta_2} > 0$	1	$\frac{1}{\alpha_0} + \frac{\alpha_4 + \alpha_6 + 2\beta_2}{2\alpha_4\beta_2 + 2\alpha_6\beta_2} > 0$	
11	! .	.: .	المحدد								

Unitarity conditions
(Unitarity is demonstrably impossible)

	$ \begin{array}{c} \vdots \\ P = 0 \\ \hline \vdots \\ \vdots \\$							9	<i>kμ</i> / :	?
Parity:	Spin:	Square mass:	Polarisations:	Pole residue:	Massive particle		Polarisations:	? Pole residue:	Quadratic pole	
Odd	0	$-\frac{\alpha_0+8\beta_3}{2(\alpha_2+\alpha_3)}>0$	1	$-\frac{1}{\alpha_2 + \alpha_3} > 0$	le		2	$\frac{1}{\alpha_0} > 0$		

	Massive partic	le
? $J^P = 2^{-/}$	Pole residue:	$-\frac{1}{\alpha_1 + \alpha_2} > 0$
	Polarisations:	5
$ \frac{1}{k^{\mu}} $	Square mass:	$\left \frac{\alpha_0 - 4\beta_1}{4(\alpha_1 + \alpha_2)} > 0 \right $
?	Spin:	2
	Parity:	Odd