



## Unitarity conditions

(No massive particles)

	$\Delta_{1^+}^{\#1} + \alpha\beta$	$\Delta_{1^+}^{\#2} + \alpha\beta$	$\Delta_{1^+}^{\#3} + \alpha\beta$	$\Delta_{1^-}^{\#1} - \alpha$	$\Delta_{1^-}^{\#2} - \alpha$	$\Delta_{1^-}^{\#3} - \alpha$	$\Delta_{1^-}^{\#4} - \alpha$	$\Delta_{1^-}^{\#5} - \alpha$	$\Delta_{1^-}^{\#6} - \alpha$	$\mathcal{I}_{1^-}^{\#1} - \alpha$
$\Delta_{1^+}^{\#1} + \alpha\beta$	0	$-\frac{2\sqrt{2}}{a_0}$	0	0	0	0	0	0	0	0
$\Delta_{1^+}^{\#2} + \alpha\beta$	$-\frac{2\sqrt{2}}{a_0}$	$\frac{2}{a_0}$	0	0	0	0	0	0	0	0
$\Delta_{1^+}^{\#3} + \alpha\beta$	0	0	$\frac{4}{a_0}$	0	0	0	0	0	0	0
$\Delta_{1^-}^{\#1} + \alpha$	0	0	0	0	$\frac{\sqrt{2}(4+k^2)}{a_0(2+k^2)}$	$-\frac{2k^2}{\sqrt{3}a_0(2+k^2)}$	0	$\frac{\sqrt{\frac{2}{3}}k^2}{a_0(2+k^2)}$	0	$-\frac{2i\sqrt{2}k}{a_0(2+k^2)}$
$\Delta_{1^-}^{\#2} + \alpha$	0	0	0	$\frac{\sqrt{2}(4+k^2)}{a_0(2+k^2)}$	$\frac{(4+k^2)^2}{2a_0(2+k^2)^2}$	$\frac{k^2(-2+k^2)}{2\sqrt{6}a_0(2+k^2)^2}$	$-\frac{\sqrt{\frac{5}{6}}k^2}{4a_0+2a_0k^2}$	$\frac{k^2(5+2k^2)}{\sqrt{3}a_0(2+k^2)^2}$	$-\frac{k^2}{\sqrt{6}a_0(2+k^2)^2}$	$-\frac{ik(4+k^2)}{a_0(2+k^2)^2}$
$\Delta_{1^-}^{\#3} + \alpha$	0	0	0	$-\frac{2k^2}{\sqrt{3}(2a_0+a_0k^2)}$	$\frac{k^2(-2+k^2)}{2\sqrt{6}a_0(2+k^2)^2}$	$-\frac{76+52k^2+3k^4}{12a_0(2+k^2)^2}$	$\frac{\sqrt{5}(10+3k^2)}{12a_0(2+k^2)}$	$\frac{-2+k^2}{3\sqrt{2}a_0(2+k^2)^2}$	$-\frac{1}{-2a_0-2+3k^2}$	$\frac{ik(6+5k^2)}{\sqrt{6}a_0(2+k^2)^2}$
$\Delta_{1^-}^{\#4} + \alpha$	0	0	0	0	$-\frac{\sqrt{\frac{5}{6}}k^2}{4a_0+2a_0k^2}$	$\frac{\sqrt{5}(10+3k^2)}{12a_0(2+k^2)}$	$\frac{1}{12a_0}$	$-\frac{\sqrt{\frac{5}{2}}}{6a_0+3a_0k^2}$	$-\frac{\sqrt{5}}{6a_0}$	$-\frac{i\sqrt{\frac{5}{6}}k}{a_0(2+k^2)}$
$\Delta_{1^-}^{\#5} + \alpha$	0	0	0	$\frac{\sqrt{2}k^2}{2a_0+a_0k^2}$	$\frac{k^2(5+2k^2)}{\sqrt{3}a_0(2+k^2)^2}$	$\frac{-2+k^2}{3\sqrt{2}a_0(2+k^2)^2}$	$-\frac{\sqrt{\frac{5}{2}}}{6a_0+3a_0k^2}$	$\frac{2(17+14k^2+3k^4)}{3a_0(2+k^2)^2}$	$-\frac{\sqrt{2}(7+3k^2)}{3a_0(2+k^2)}$	$\frac{2ik(3+k^2)}{\sqrt{3}a_0(2+k^2)^2}$
$\Delta_{1^-}^{\#6} + \alpha$	0	0	0	0	$-\frac{k^2}{\sqrt{6}(2a_0+a_0k^2)}$	$\frac{1}{-2a_0-2+3k^2}$	$-\frac{\sqrt{5}}{6a_0}$	$-\frac{\sqrt{2}(7+3k^2)}{3a_0(2+k^2)}$	$\frac{5}{3a_0}$	$-\frac{i\sqrt{\frac{2}{3}}k}{a_0(2+k^2)}$
$\mathcal{I}_{1^-}^{\#1} + \alpha$	0	0	0	$\frac{2i\sqrt{2}k}{2a_0+a_0k^2}$	$\frac{ik(4+k^2)}{a_0(2+k^2)^2}$	$-\frac{ik(6+5k^2)}{\sqrt{6}a_0(2+k^2)^2}$	$i\sqrt{\frac{5}{6}}\frac{k}{2a_0+a_0k^2}$	$-\frac{2ik(3+k^2)}{\sqrt{3}a_0(2+k^2)^2}$	$\frac{i\sqrt{\frac{2}{3}}k}{2a_0+a_0k^2}$	$-\frac{2k^2}{a_0(2+k^2)^2}$

Source constraints	
SO(3) irreps	#
$2\mathcal{T}_{0+}^{\#2} - i k \Delta_{0+}^{\#2} = 0$	1
$\Delta_{0+}^{\#3} + 2\Delta_{0+}^{\#4} + 3\Delta_{0+}^{\#2} = 0$	1
$6\mathcal{T}_{1-}^{\#1\alpha} - i k (3\Delta_{1-}^{\#2\alpha} - \Delta_{1-}^{\#5\alpha} + \Delta_{1-}^{\#3\alpha}) = 0$	3
$2\Delta_{1-}^{\#6\alpha} + \Delta_{1-}^{\#4\alpha} + 2\Delta_{1-}^{\#5\alpha} + \Delta_{1-}^{\#3\alpha} = 0$	3
Total #:	8