



Quadratic pole

Pole residue:	$\frac{1}{\alpha_0} > 0$
Polarisations:	2

$\alpha_0 > 0$

(No massive particles)

$\sigma_{1+}^{\#1} \dagger \alpha\beta$	$\sigma_{1+}^{\#2} \alpha\beta$	$\tau_{1+}^{\#1} \alpha\beta$	$\sigma_{1-}^{\#1} \alpha$	$\sigma_{1-}^{\#2} \alpha$	$\tau_{1-}^{\#1} \alpha$	$\tau_{1-}^{\#2} \alpha$
0	$\frac{2\sqrt{2}}{\alpha_0 + \alpha_0 k^2}$	$\frac{2i\sqrt{2}k}{\alpha_0 + \alpha_0 k^2}$	0	0	0	0
$\frac{2\sqrt{2}}{\alpha_0 + \alpha_0 k^2}$	$-\frac{2}{\alpha_0(1+k^2)^2}$	$-\frac{2ik}{\alpha_0(1+k^2)^2}$	0	0	0	0
$-\frac{2i\sqrt{2}k}{\alpha_0 + \alpha_0 k^2}$	$\frac{2ik}{\alpha_0(1+k^2)^2}$	$-\frac{2k^2}{\alpha_0(1+k^2)^2}$	0	0	0	0
0	0	0	0	$-\frac{2\sqrt{2}}{\alpha_0 + 2\alpha_0 k^2}$	0	$-\frac{4ik}{\alpha_0 + 2\alpha_0 k^2}$
0	0	0	$-\frac{2\sqrt{2}}{\alpha_0 + 2\alpha_0 k^2}$	$-\frac{2}{\alpha_0(1+2k^2)^2}$	0	$-\frac{2i\sqrt{2}k}{\alpha_0(1+2k^2)^2}$
0	0	0	0	0	0	0
0	0	0	$\frac{4ik}{\alpha_0 + 2\alpha_0 k^2}$	$\frac{2i\sqrt{2}k}{\alpha_0(1+2k^2)^2}$	0	$-\frac{4k^2}{\alpha_0(1+2k^2)^2}$

Lagrangian density

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$$-\frac{1}{2}\alpha_0\omega_{\alpha\zeta\beta}\omega^{\alpha\beta\zeta}-\frac{1}{2}\alpha_0\omega^{\alpha\beta}{}_{\alpha}\omega_{\beta}{}^{\zeta}{}_{\zeta}+f^{\alpha\beta}\tau_{\alpha\beta}+\omega^{\alpha\beta\chi}\sigma_{\alpha\beta\chi}-\alpha_0f^{\alpha\beta}\partial_{\beta}\omega_{\alpha}{}^{\zeta}{}_{\zeta}+\alpha_0\partial_{\beta}\omega^{\alpha\beta}{}_{\alpha}+\alpha_0f^{\alpha\beta}\partial_{\zeta}\omega_{\alpha}{}^{\zeta}{}_{\beta}-\alpha_0f^{\alpha}{}_{\alpha}\partial_{\zeta}\omega^{\beta\zeta}{}_{\beta}$$

$\omega_{1+}^{\#1} \dagger \alpha\beta$	$\omega_{1+}^{\#2} \alpha\beta$	$f_{1+}^{\#1} \alpha\beta$	$\omega_{1-}^{\#1} \alpha$	$\omega_{1-}^{\#2} \alpha$	$f_{1-}^{\#1} \alpha$	$f_{1-}^{\#2} \alpha$
$\frac{\alpha_0}{4}$	$\frac{\alpha_0 k}{2\sqrt{2}}$	$\frac{i\alpha_0 k}{2\sqrt{2}}$	0	0	0	0
$\frac{\alpha_0}{2\sqrt{2}}$	0	0	0	0	0	0
$-\frac{i\alpha_0 k}{2\sqrt{2}}$	0	0	0	0	0	0
0	0	0	$\frac{\alpha_0}{4}$	$-\frac{\alpha_0}{2\sqrt{2}}$	0	$-\frac{1}{2}i\alpha_0 k$
0	0	0	$-\frac{\alpha_0}{2\sqrt{2}}$	0	0	0
0	0	0	0	0	0	0
0	0	0	$\frac{i\alpha_0 k}{2}$	0	0	0

$\sigma_{0+}^{\#1} \dagger$	$\tau_{0+}^{\#1}$	$\tau_{0+}^{\#2}$	$\sigma_{0-}^{\#1}$
0	$-\frac{i\sqrt{2}}{\alpha_0 k}$	0	0
$\frac{i\sqrt{2}}{\alpha_0 k}$	$-\frac{1}{\alpha_0 k^2}$	0	0
0	0	0	0
0	0	0	$\frac{2}{\alpha_0}$

$\omega_{0+}^{\#1} \dagger$	$f_{0+}^{\#1}$	$f_{0+}^{\#2}$	$\omega_{0-}^{\#1}$
$\frac{\alpha_0}{2}$	$-\frac{i\alpha_0 k}{\sqrt{2}}$	0	0
$\frac{i\alpha_0 k}{\sqrt{2}}$	0	0	0
0	0	0	$\frac{\alpha_0}{2}$

$\omega_{2+}^{\#1} \dagger \alpha\beta$	$f_{2+}^{\#1} \alpha\beta$	$\omega_{2-}^{\#1} \alpha\beta\chi$
$-\frac{\alpha_0}{4}$	$\frac{i\alpha_0 k}{2\sqrt{2}}$	0
$-\frac{i\alpha_0 k}{2\sqrt{2}}$	0	0
0	0	$-\frac{\alpha_0}{4}$

$\sigma_{2+}^{\#1} \dagger \alpha\beta$	$\tau_{2+}^{\#1} \alpha\beta$	$\sigma_{2-}^{\#1} \alpha\beta\chi$
0	$\frac{2i\sqrt{2}}{\alpha_0 k}$	0
$-\frac{2i\sqrt{2}}{\alpha_0 k}$	$\frac{2}{\alpha_0 k^2}$	0
0	0	$-\frac{4}{\alpha_0}$

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