

PSAL results panel

$$S = \iiint \left(\frac{1}{4} \left(2\,a_{\circ} \cdot \mathcal{T}^{\alpha\,\beta} \cdot \mathcal{T}^{\chi}_{\beta\chi} + \mathcal{T}^{\alpha\beta\chi} \left(-2\,a_{\circ} \cdot \mathcal{T}_{\beta\chi\alpha} + 4\,\mathcal{W}_{\alpha\beta\chi} \right) + 4\,\mathcal{T}^{\alpha\beta} \cdot h_{\alpha\beta} - a_{\circ} \cdot h^{\chi}_{\chi} \cdot \partial_{\beta} \mathcal{T}^{\alpha\,\beta}_{\alpha} + a_{\circ} \cdot h^{\chi}_{\chi} \cdot \partial_{\beta} \mathcal{T}^{\alpha\beta}_{\alpha} - 2\,a_{\circ} \cdot h_{\alpha\chi} \cdot \partial_{\beta} \mathcal{T}^{\alpha\beta\chi} + 2\,a_{\circ} \cdot h_{\beta\chi} \cdot \partial^{\chi} \mathcal{T}^{\alpha}_{\alpha}{}^{\beta} \right) \right) [x, x, y, z] d z d y d x d t$$

Wave operator

$\mathcal{O}^{\circ} h^{\perp}$	$\mathcal{O}^{\circ} h^{\parallel}$	$\mathcal{O}^{\circ} \mathcal{T}_a^{\parallel}$	$\mathcal{O}^{\circ} \mathcal{T}_s^{\perp t}$	$\mathcal{O}^{\circ} \mathcal{T}_s^{\parallel}$	$\mathcal{O}^{\circ} \mathcal{T}_s^{\perp h}$	$\mathcal{O}^{\circ} \mathcal{T}_a^{\parallel}$
$\mathcal{O}^{\circ} h^{\perp} \dagger$	0	0	0	$\frac{ia_{\circ}k}{4}$	$-\frac{ia_{\circ}k}{4\sqrt{2}}$	0
$\mathcal{O}^{\circ} h^{\parallel} \dagger$	0	0	$\frac{ia_{\circ}k}{2\sqrt{2}}$	0	$-\frac{ia_{\circ}k}{4\sqrt{3}}$	$\frac{ia_{\circ}k}{4\sqrt{6}}$
$\mathcal{O}^{\circ} \mathcal{T}_a^{\parallel} \dagger$	0	$-\frac{ia_{\circ}k}{2\sqrt{2}}$	$-\frac{a_{\circ}}{2}$	0	0	0
$\mathcal{O}^{\circ} \mathcal{T}_s^{\perp t} \dagger$	0	0	0	0	$\frac{a_{\circ}}{2}$	$-\frac{a_{\circ}}{2\sqrt{2}}$
$\mathcal{O}^{\circ} \mathcal{T}_s^{\parallel} \dagger$	$-\frac{1}{4}ia_{\circ}k$	$\frac{ia_{\circ}k}{4\sqrt{3}}$	0	$\frac{a_{\circ}}{2}$	0	$-\frac{a_{\circ}}{2\sqrt{2}}$
$\mathcal{O}^{\circ} \mathcal{T}_s^{\perp h} \dagger$	$\frac{ia_{\circ}k}{4\sqrt{2}}$	$-\frac{ia_{\circ}k}{4\sqrt{6}}$	0	$-\frac{a_{\circ}}{2\sqrt{2}}$	$-\frac{a_{\circ}}{2\sqrt{2}}$	$\frac{a_{\circ}}{2}$
$\mathcal{O}^{\circ} \mathcal{T}_a^{\parallel} \dagger$	0	0	0	0	0	$-\frac{a_{\circ}}{2}$
$\mathcal{1}^{\circ} \mathcal{T}_a^{\parallel} \dagger^{\alpha\beta}$	$-\frac{a_{\circ}}{4}$	$-\frac{a_{\circ}}{2\sqrt{2}}$	0	0	0	0
$\mathcal{1}^{\circ} \mathcal{T}_a^{\perp} \dagger^{\alpha\beta}$	$-\frac{a_{\circ}}{2\sqrt{2}}$	0	0	0	0	0
$\mathcal{1}^{\circ} \mathcal{T}_s^{\perp} \dagger^{\alpha\beta}$	0	0	$\frac{a_{\circ}}{4}$	0	0	0
$\mathcal{1}^{\circ} h^{\perp} \dagger^{\alpha}$	0	0	0	0	0	0
$\mathcal{1}^{\circ} \mathcal{T}_a^{\parallel} \dagger^{\alpha}$	0	0	0	$-\frac{ia_{\circ}k}{4\sqrt{2}}$	$-\frac{a_{\circ}}{4}$	$\frac{a_{\circ}}{2\sqrt{2}}$
$\mathcal{1}^{\circ} \mathcal{T}_a^{\perp} \dagger^{\alpha}$	0	0	0	0	0	0
$\mathcal{1}^{\circ} \mathcal{T}_s^{\perp t} \dagger^{\alpha}$	0	0	0	$\frac{ia_{\circ}k}{4\sqrt{6}}$	0	$-\frac{a_{\circ}}{3}$
$\mathcal{1}^{\circ} \mathcal{T}_s^{\parallel} \dagger^{\alpha}$	0	0	0	$-\frac{1}{4}i\sqrt{\frac{5}{6}}a_{\circ}k$	0	$\frac{\sqrt{5}a_{\circ}}{6}$
$\mathcal{1}^{\circ} \mathcal{T}_s^{\perp h} \dagger^{\alpha}$	0	0	0	$\frac{ia_{\circ}k}{4\sqrt{3}}$	0	$-\frac{1}{6}\sqrt{\frac{5}{2}}a_{\circ}$
$\mathcal{1}^{\circ} \mathcal{T}_a^{\parallel} \dagger^{\alpha}$	0	0	0	$\frac{ia_{\circ}k}{4\sqrt{6}}$	0	$-\frac{a_{\circ}}{6}$
$\mathcal{2}^{\circ} h^{\perp} \dagger^{\alpha\beta}$	0	$-\frac{ia_{\circ}k}{4\sqrt{2}}$	$-\frac{ia_{\circ}k}{4\sqrt{3}}$	$\frac{ia_{\circ}k}{4\sqrt{6}}$	0	0
$\mathcal{2}^{\circ} \mathcal{T}_a^{\parallel} \dagger^{\alpha\beta}$	$\frac{ia_{\circ}k}{4\sqrt{2}}$	$\frac{a_{\circ}}{4}$	0	0	0	0
$\mathcal{2}^{\circ} \mathcal{T}_s^{\parallel} \dagger^{\alpha\beta}$	$\frac{ia_{\circ}k}{4\sqrt{3}}$	0	$-\frac{a_{\circ}}{2}$	0	0	0
$\mathcal{2}^{\circ} \mathcal{T}_s^{\perp} \dagger^{\alpha\beta}$	$-\frac{ia_{\circ}k}{4\sqrt{6}}$	0	0	$\frac{a_{\circ}}{4}$	0	0
$\mathcal{2}^{\circ} \mathcal{T}_a^{\parallel} \dagger^{\alpha\beta\chi}$	0	0	0	0	$\frac{a_{\circ}}{4}$	0
$\mathcal{2}^{\circ} \mathcal{T}_s^{\parallel} \dagger^{\alpha\beta\chi}$	0	0	0	0	0	$\frac{a_{\circ}}{4}$
$\mathcal{3}^{\circ} \mathcal{T}_s^{\parallel} \dagger^{\alpha\beta\chi}$						$-\frac{a_{\circ}}{2}$

Saturated propagator

$\mathcal{O}^{\circ}\mathcal{T}^{\perp}\dagger$	$\mathcal{O}^{\circ}\mathcal{T}^{\parallel}\dagger$	$\mathcal{O}^{\circ}\mathcal{W}_a^{\parallel}\dagger$	$\mathcal{O}^{\circ}\mathcal{W}_s^{\perp t}\dagger$	$\mathcal{O}^{\circ}\mathcal{W}_s^{\parallel}\dagger$	$\mathcal{O}^{\circ}\mathcal{W}_s^{\perp h}\dagger$	$\mathcal{O}^{\circ}\mathcal{W}_a^{\parallel}\dagger$				
$-\frac{36\,k^2}{a_{\circ}\,(16+3\,k^2)^2}$	$-\frac{4\,\sqrt{3}}{16\,a_{\circ}+3\,a_{\circ}\,k^2}$	$-\frac{2\,i\,\sqrt{6}\,k}{16\,a_{\circ}+3\,a_{\circ}\,k^2}$	$-\frac{72\,i\,k}{a_{\circ}\,(16+3\,k^2)^2}$	$-\frac{8\,i\,k\,(19+3\,k^2)}{a_{\circ}\,(16+3\,k^2)^2}$	$-\frac{4\,i\,\sqrt{2}\,k\,(10+3\,k^2)}{a_{\circ}\,(16+3\,k^2)^2}$	0				
$\frac{4\,\sqrt{3}}{16\,a_{\circ}+3\,a_{\circ}\,k^2}$	$\frac{4}{a_{\circ}\,k^2}$	$\frac{2\,i\,\sqrt{2}}{a_{\circ}\,k}$	$\frac{8\,i\,\sqrt{3}}{16\,a_{\circ}\,k+3\,a_{\circ}\,k^3}$	$-\frac{8\,i}{\sqrt{3}\,(16\,a_{\circ}\,k+3\,a_{\circ}\,k^3)}$	$-\frac{8\,i\,\sqrt{\frac{7}{3}}}{16\,a_{\circ}\,k+3\,a_{\circ}\,k^3}$	0				
$-\frac{2\,i\,\sqrt{6}\,k}{16\,a_{\circ}+3\,a_{\circ}\,k^2}$	$-\frac{2\,i\,\sqrt{2}}{a_{\circ}\,k}$	0	$\frac{4\,\sqrt{6}}{16\,a_{\circ}+3\,a_{\circ}\,k^2}$	$-\frac{4\,\sqrt{\frac{7}{3}}}{16\,a_{\circ}+3\,a_{\circ}\,k^2}$	$-\frac{8}{\sqrt{3}\,(16\,a_{\circ}+3\,a_{\circ}\,k^2)}$	0				
$\frac{72\,i\,k}{a_{\circ}\,(16+3\,k^2)^2}$	$-\frac{8\,i\,\sqrt{3}}{16\,a_{\circ}\,k+3\,a_{\circ}\,k^3}$	$\frac{4\,\sqrt{6}}{16\,a_{\circ}+3\,a_{\circ}\,k^2}$	$-\frac{144}{a_{\circ}\,(16+3\,k^2)^2}$	$\frac{16\,(19+3\,k^2)}{a_{\circ}\,(16+3\,k^2)^2}$	$-\frac{8\,\sqrt{2}\,(10+3\,k^2)}{a_{\circ}\,(16+3\,k^2)^2}$	0				
$-\frac{8\,i\,k\,(19+3\,k^2)}{a_{\circ}\,(16+3\,k^2)^2}$	$\frac{8\,i}{\sqrt{3}\,(16\,a_{\circ}\,k+3\,a_{\circ}\,k^3)}$	$-\frac{4\,\sqrt{\frac{7}{3}}}{16\,a_{\circ}+3\,a_{\circ}\,k^2}$	$\frac{16\,(19+3\,k^2)}{a_{\circ}\,(16+3\,k^2)^2}$	$-\frac{16\,(35+6\,k^2)}{3\,a_{\circ}\,(16+3\,k^2)^2}$	$-\frac{8\,\sqrt{2}\,(22+3\,k^2)}{3\,a_{\circ}\,(16+3\,k^2)^2}$	0				
$\frac{4\,i\,\sqrt{2}\,k\,(10+3\,k^2)}{a_{\circ}\,(16+3\,k^2)^2}$	$\frac{8\,i\,\sqrt{\frac{7}{3}}}{16\,a_{\circ}\,k+3\,a_{\circ}\,k^3}$	$-\frac{8}{\sqrt{3}\,(16\,a_{\circ}+3\,a_{\circ}\,k^2)}$	$\frac{8\,\sqrt{2}\,(10+3\,k^2)}{a_{\circ}\,(16+3\,k^2)^2}$	$-\frac{8\,\sqrt{2}\,(22+3\,k^2)}{3\,a_{\circ}\,(16+3\,k^2)^2}$	$\frac{32\,(13+3\,k^2)}{3\,a_{\circ}\,(16+3\,k^2)^2}$	0				
$\mathcal{O}^{\circ}\mathcal{W}_a^{\parallel}\dagger$	0	0	0	0	0	$-\frac{2}{a_{\circ}}$				
$\mathcal{1}^{\circ}\mathcal{W}_a^{\parallel}\dagger^{\alpha\beta}$	0	$-\frac{2\,\sqrt{2}}{a_{\circ}}$	0	0	0	0				
$\mathcal{1}^{\circ}\mathcal{W}_a^{\perp}\dagger^{\alpha\beta}$	$-\frac{2\,\sqrt{2}}{a_{\circ}}$	$\frac{2}{a_{\circ}}$	0	0	0	0				
$\mathcal{1}^{\circ}\mathcal{W}_s^{\perp}\dagger^{\alpha\beta}$	0	0	$\frac{4}{a_{\circ}}$	0	0	0				
$\mathcal{1}^{\circ}\mathcal{T}^{\perp}\dagger^{\alpha}$	0	0	0	$\frac{2\,k^2}{a_{\circ}\,(2+k^2)^2}$	$\frac{2\,i\,\sqrt{2}\,k}{a_{\circ}\,(2+k^2)}$	$\frac{i\,k\,(4+k^2)}{a_{\circ}\,(2+k^2)^2}$	$-\frac{i\,k\,(6+5\,k^2)}{\sqrt{6}\,a_{\circ}\,(2+k^2)^2}$	$\frac{i\,\sqrt{\frac{5}{6}}\,k}{a_{\circ}\,(2+k^2)}$	$-\frac{2\,i\,k\,(3+k^2)}{\sqrt{3}\,a_{\circ}\,(2+k^2)^2}$	$\frac{i\,\sqrt{\frac{7}{3}}\,k}{a_{\circ}\,(2+k^2)}$
$\mathcal{1}^{\circ}\mathcal{W}_a^{\parallel}\dagger^{\alpha}$	0	0	0	$-\frac{2\,i\,\sqrt{2}\,k}{a_{\circ}\,(2+k^2)}$	0	$\frac{\sqrt{2}\,(4+k^2)}{a_{\circ}\,(2+k^2)}$	$-\frac{2\,k^2}{\sqrt{3}\,a_{\circ}\,(2+k^2)}$	0		0
$\mathcal{1}^{\circ}\mathcal{W}_a^{\perp}\dagger^{\alpha}$	0	0	0	$-\frac{i\,k\,(4+k^2)}{a_{\circ}\,(2+k^2)^2}$	$\frac{\sqrt{2}\,(4+k^2)}{a_{\circ}\,(2+k^2)}$	$\frac{(4+k^2)^2}{2\,a_{\circ}\,(2+k^2)^2}$	$\frac{k^2\,(-2+k^2)}{2\,\sqrt{6}\,a_{\circ}\,(2+k^2)^2}$	$-\frac{\sqrt{\frac{5}{6}}\,k^2}{4\,a_{\circ}+2\,a_{\circ}\,k^2}$	$\frac{k^2\,(5+2\,k^2)}{\sqrt{3}\,a_{\circ}\,(2+k^2)^2}$	$-\frac{k^2}{\sqrt{6}\,a_{\circ}\,(2+k^2)}$
$\mathcal{1}^{\circ}\mathcal{W}_s^{\perp t}\dagger^{\alpha}$	0	0	0	$-\frac{i\,k\,(6+5\,k^2)}{\sqrt{6}\,a_{\circ}\,(2+k^2)^2}$	$-\frac{2\,k^2}{\sqrt{3}\,a_{\circ}\,(2+k^2)}$	$\frac{k^2\,(-2+k^2)}{2\,\sqrt{6}\,a_{\circ}\,(2+k^2)^2}$	$\frac{76+52\,k^2+3\,k^4}{12\,a_{\circ}\,(2+k^2)^2}$	$\frac{\sqrt{5}\,(10+3\,k^2)}{12\,a_{\circ}\,(2+k^2)}$	$\frac{-2+k^2}{3\,\sqrt{2}\,a_{\circ}\,(2+k^2)^2}$	$\frac{1}{-2\,a_{\circ}-\frac{8\,a_{\circ}}{2+3\,k^2}}$
$\mathcal{1}^{\circ}\mathcal{W}_s^{\parallel} \dagger^{\alpha}$	0	0	0	$-\frac{i\,\sqrt{\frac{5}{6}}\,k}{a_{\circ}\,(2+k^2)}$	0	$-\frac{\sqrt{\frac{5}{6}}\,k^2}{4\,a_{\circ}+2\,a_{\circ}\,k^2}$	$\frac{\sqrt{5}\,(10+3\,k^2)}{12\,a_{\circ}\,(2+k^2)}$	$\frac{1}{12\,a_{\circ}}$	$-\frac{\sqrt{\frac{5}{3}}}{6\,a_{\circ}+3\,a_{\circ}\,k^2}$	$-\frac{\sqrt{5}}{6\,a_{\circ}}$
$\mathcal{1}^{\circ}\mathcal{W}_s^{\perp h}\dagger^{\alpha}$	0	0	0	$\frac{2\,i\,k\,(3+k^2)}{\sqrt{3}\,a_{\circ}\,(2+k^2)^2}$	$\frac{\sqrt{\frac{7}{3}}\,k^2}{a_{\circ}\,(2+k^2)}$	$\frac{k^2\,(5+2\,k^2)}{\sqrt{3}\,a_{\circ}\,(2+k^2)^2}$	$\frac{-2+k^2}{3\,\sqrt{2}\,a_{\circ}\,(2+k^2)^2}$	$-\frac{\sqrt{\frac{5}{3}}}{6\,a_{\circ}+3\,a_{\circ}\,k^2}$	$\frac{2\,(17+14\,k^2+3\,k^4)}{3\,a_{\circ}\,(2+k^2)^2}$	$-\frac{\sqrt{2}\,(7+3\,k^2)}{3\,a_{\circ}\,(2+k^2)}$
$\mathcal{1}^{\circ}\mathcal{W}_s^{\parallel} \dagger^{\alpha}$	0	0	0	$-\frac{i\,\sqrt{\frac{7}{3}}\,k}{2\,a_{\circ}+a_{\circ}\,k^2}$	0	$-\frac{k^2}{\sqrt{6}\,a_{\circ}\,(2+k^2)}$	$-\frac{1}{-2\,a_{\circ}-\frac{8\,a_{\circ}}{2+3\,k^2}}$	$-\frac{\sqrt{5}}{6\,a_{\circ}}$	$-\frac{\sqrt{2}\,(7+3\,k^2)}{3\,a_{\circ}\,(2+k^2)}$	$\frac{5}{3\,a_{\circ}}$
$\mathcal{2}^{\circ}\mathcal{T}^{\perp}\dagger^{\alpha\beta}$	$-\frac{8}{a_{\circ}\,k^2}$	$-\frac{4\,i\,\sqrt{2}}{a_{\circ}\,k}$	$\frac{4\,i}{\sqrt{3}\,a_{\circ}\,k}$	$\frac{4\,i\,\sqrt{\frac{7}{3}}}{a_{\circ}\,k}$						
$\mathcal{2}^{\circ}\mathcal{W}_a^{\parallel}\dagger^{\alpha\beta}$	$\frac{4\,i\,\sqrt{2}}{a_{\circ}\,k}$	0	$\frac{2\,\sqrt{\frac{7}{3}}}{a_{\circ}}$	$\frac{4}{\sqrt{3}\,a_{\circ}}$						
$\mathcal{2}^{\circ}\mathcal{W}_s^{\parallel}\dagger^{\alpha\beta}$	$-\frac{4\,i}{\sqrt{3}\,a_{\circ}\,k}$	$\frac{2\,\sqrt{\frac{7}{3}}}{a_{\circ}}$	$-\frac{8}{3\,a_{\circ}}$	$-\frac{2\,\sqrt{2}}{3\,a_{\circ}}$						
$\mathcal{2}^{\circ}\mathcal{W}_s^{\perp}\dagger^{\alpha\beta}$	$-\frac{4\,i\,\sqrt{\frac{7}{3}}}{a_{\circ}\,k}$	$\frac{4}{\sqrt{3}\,a_{\circ}}$	$-\frac{2\,\sqrt{2}}{3\,a_{\circ}}$	$\frac{8}{3\,a_{\circ}}$						
$\mathcal{2}^{\circ}\mathcal{W}_a^{\parallel}\dagger^{\alpha\beta\chi}$	0	0	0	0	$\frac{4}{a_{\circ}}$	0				
$\mathcal{2}^{\circ}\mathcal{W}_s^{\parallel}\dagger^{\alpha\beta\chi}$	0	0	0	0	0	$\frac{4}{a_{\circ}}$				
$\mathcal{3}^{\circ}\mathcal{W}_s^{\parallel}\dagger^{\alpha\beta\chi}$							$-\frac{2}{a_{\circ}}$			

Source constraints

Spin-parity form	Covariant form	Multiplicities
$k\,\mathcal{O}^{\circ} \mathcal{W}_s^{\perp} \dagger + 2\,k\,\mathcal{O}^{\circ} \mathcal{W}_s^{\perp h} \dagger - 6\,i\,\mathcal{O}^{\circ} \mathcal{T}^{\perp} \dagger = 0$	$2\,\partial_{\beta} a_{\alpha} \mathcal{T}^{\alpha\beta} + \partial_{\chi} \partial^{\chi} a_{\alpha} \mathcal{W}^{\alpha\beta}_{\beta} = \partial_{\chi} \partial_{\beta} a_{\alpha} \mathcal{W}^{\alpha\beta\chi}$	1
$k\,\mathcal{O}^{\circ} \mathcal{W}_s^{\perp t} \dagger + 2\,i\,\mathcal{O}^{\circ} \mathcal{T}^{\perp} \dagger = 0$	$2\,\partial_{\beta} a_{\alpha} \mathcal{T}^{\alpha\beta} = \partial_{\chi} \partial_{\beta} a_{\alpha} \mathcal{W}^{\alpha\beta\chi}$	1
$6\,k\,\mathcal{1}^{\circ} \mathcal{W}_a^{\perp} \dagger^{\alpha} + 2\,k\,\mathcal{1}^{\circ} \mathcal{W}_s^{\parallel h} \dagger^{\alpha} + k\,\mathcal{1}^{\circ} \mathcal{W}_s^{\parallel t} \dagger^{\alpha} + 3\,k\,\mathcal{1}^{\circ} \mathcal{W}_s^{\perp t} \dagger^{\alpha} + 12\,i\,\mathcal{1}^{\circ} \mathcal{T}^{\perp} \dagger^{\alpha} = 0$	$4\,\partial_{\chi} \partial_{\beta} a^{\alpha} \mathcal{T}^{\beta\chi} + 2\,\partial_{\beta} \partial^{\beta} \partial_{\chi} \partial_{\beta} \mathcal{W}^{\beta\alpha\chi} + \partial_{\beta} \partial^{\beta} \partial_{\chi} \partial^{\chi} \mathcal{W}^{\alpha\beta}_{\beta} = 4\,\partial_{\chi} \partial^{\chi} \partial_{\beta} \mathcal{T}^{\alpha\beta} + 2\,\partial_{\beta} \partial_{\chi} \partial_{\beta} a^{\alpha} \mathcal{W}^{\beta\chi\delta} + \partial_{\beta} \partial^{\beta} \partial_{\beta} a^{\alpha} \mathcal{W}^{\beta\chi}_{\chi}$	3
$k\,\mathcal{1}^{\circ} \mathcal{W}_s^{\perp h} \dagger^{\alpha} - 6\,i\,\mathcal{1}^{\circ} \mathcal{T}^{\perp} \dagger^{\alpha} = k\left(3\,\mathcal{1}^{\circ} \mathcal{W}_a^{\perp} \dagger^{\alpha} + \mathcal{1}^{\circ} \mathcal{W}_s^{\perp t} \dagger^{\alpha}\right)$	$2\,\partial_{\chi} \partial_{\beta} a^{\alpha} \mathcal{T}^{\beta\chi} + \partial_{\beta} \partial^{\beta} \partial_{\chi} \partial_{\beta} \mathcal{W}^{\beta\alpha\chi} = 2\,\partial_{\chi} \partial^{\chi} \partial_{\beta} \mathcal{T}^{\alpha\beta} + \partial_{\beta} \partial_{\chi} \partial_{\beta} a^{\alpha} \mathcal{W}^{\beta\chi\delta}$	3
Total expected gauge generators:		8

Massive spectrum

(No particles)

Massless spectrum

Massless particle

Pole residue:	$-\frac{p^2}{a_{\circ}} > 0$
Polarisations:	2

Unitarity conditions

$$a_{\circ} < 0$$