

Can we describe the YM-phase diagram with a perturbative approach?

$$\mathcal{L} = \frac{1}{4} F_{\mu\nu}^a F_{\mu\nu}^a + \bar{D}_\mu \bar{c}^a D_\mu c^a + i h^a \bar{D}_\mu (A_\mu^a - \bar{A}_\mu^a) + \frac{1}{2} m^2 (A_\mu^a - \bar{A}_\mu^a)^2$$

Center-symmetry

→ Polyakov Loop ℓ

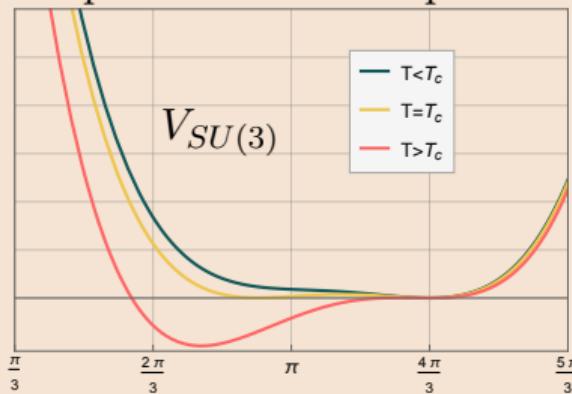
Background gauge (\bar{A}_μ^a)

→ access SSB

Curci-Ferrari gauge (m^2)

→ regulate IR

Use quantum effective potential to determine the order parameter ℓ :



→ T_c, ℓ

