

Pions: $SU(2) \times SU(2)$

- prediction for a_0, a_2 :

Main uncertainty stems from $\bar{l}_3, \langle r^2 \rangle_s^\pi$

$$\langle \pi(p') | \bar{u}u | \pi(p) \rangle = \Gamma_\pi(t) \leftrightarrow \langle r^2 \rangle_s^\pi$$

Significance of $\bar{l}_3, \langle r^2 \rangle_s^\pi$

- $M_\pi^2 = M^2 - 12NM^4\bar{l}_3 + O(\hat{m}^3)$
- $\frac{F_\pi}{F} = 1 + \frac{M^2}{6} \langle r^2 \rangle_s^\pi + 13NM^2 + O(\hat{m}^2)$

$$F^2 M^2 = -2\hat{m} \langle 0 | \bar{u}u | 0 \rangle : \text{order parameter}$$

$$F = F_\pi, \text{ evaluated in chiral limit}$$

$$N^{-1} = 192\pi^2 F^2$$