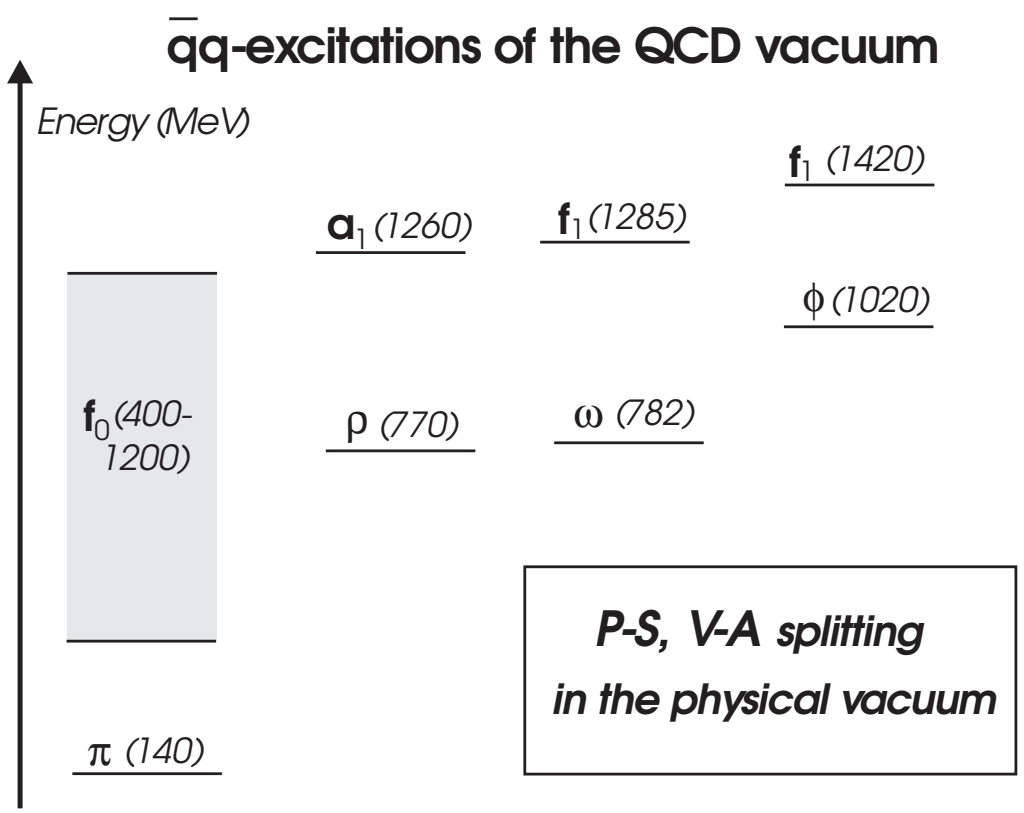
Chiral Symmetry Breaking

chiral symmetry is spontaneously broken in the physical vacuum

$$Q_k^A|0\rangle \neq 0$$

$\rightarrow$ Goldstone bosons

$$\langle 0|\mathcal{A}_k^\mu(x)|\pi_j(p)\rangle = -i\delta_{jk}F_\pi p^\mu e^{-ipx}$$

$\rightarrow$ no parity doublets