Contribution ID: **122** Type: **Poster**

Orbital angular momentum in the pion and kaon

Saturday, 27 June 2026 15:00 (2 hours)

Orbital angular momentum (OAM) is not a Poincar\'e invariant quantity; so, its value is observer dependent. Notwithstanding that, in quantum chromodynamics, a Poincar\'e-invariant theory, OAM is part of every hadron wave function. Using continuum Schwinger function methods, we elucidate both the subjective character of in-hadron OAM and expose some of its impacts on pion and kaon structure and observables. For instance, working with light-front projections of their Bethe-Salpeter wave functions, it is found that the pion is a roughly 50/50 mix of light-front OAM zero and one components and the kaon is a 60/40 system. The overall picture is that (near) Nambu-Goldstone modes are complex bound states, each with significant intrinsic OAM, independent of the observer's reference frame. This feature must be accounted for in the calculation of observables. Inductively, the same is true for all hadrons.

Collaboration

Primary author: XU, Zhen-Ni (Universidad de Huelva)

Presenter: XU, Zhen-Ni (Universidad de Huelva)

Session Classification: Poster session