Contribution ID : **41** Type : **not specified**

Wess-Zumino-Witten Interactions of Axions with Three-Flavor

Sunday, 28 September 2025 14:30 (30)

We present a complete Lagrangian describing axion interactions with pseudoscalar and (axial-)vector mesons within the three light-flavor quark framework. This formulation incorporates both the standard chiral Lagrangian and the full Wess-Zumino-Witten (WZW) term. By including instanton effects associated with the anomalous U(1)_A symmetry, we demonstrate that physical observables remain invariant under arbitrary chiral phase rotations of the quark fields. This comprehensive Lagrangian provides a robust and consistent framework for exploring axion phenomenology through its interactions with mesons and gauge bosons. As a demonstration, we compute the decay widths of GeV-scale axions into various mesonic final states for several benchmark axion models.

Primary author(s) : LIU, Jia (Peking University)

Presenter(s) : LIU, Jia (Peking University)

Session Classification : Plenary