



Contribution ID: 227

Type: **Leading contributed talk**

Experimental Status of eta Decays

Thursday 11 July 2024 14:15 (25 minutes)

The system of η and η' offers a flavor-conserving laboratory to test the low-energy QCD and to search for new physics Beyond the Standard Model. The symmetry properties of QCD at low-energy, such as the chiral symmetry or the axial anomalies, are manifested in the decays of η and η' . Thus, a study of $\eta^{(\prime)}$ will yield light on our understanding of the origin and the dynamics of QCD confinement. In addition, the $\eta^{(\prime)}$ meson has quantum numbers of vacuum (except parity) with its strong and electromagnetic decays being either anomalous or forbidden to the lowest order due to symmetries or angular momentum conservation. This enhances the relative importance of higher order contributions, making the rare $\eta^{(\prime)}$ decays a sensitive hadronic probe for weakly-coupled new forces. Searching for sub-GeV dark gauge boson candidates, and the C-violating, P-conserving interactions in various $\eta^{(\prime)}$ decays will extend our knowledge of the dark sector and explore new sources of CP violation that is needed to explain the observed matter and anti-matter asymmetry in the universe. The status and the new experimental opportunities for the $\eta^{(\prime)}$ physics will be presented.

session

D. Hadron Decays

Primary author: GAN, Liping (University of North Carolina Wilmington)

Presenter: GAN, Liping (University of North Carolina Wilmington)

Session Classification: D. Hadron Decays