Particle Physics on the Plains 2024



Contribution ID: 14

Type: not specified

Automatic quality axion from Gauged Flavor symmetry

Sunday 3 November 2024 09:36 (18 minutes)

The axion solution to the strong CP problem is closely entwined with the flavor structure of the standard model. So our model attempts at explaining the Flavor puzzle through the Frogatt Nielsen mechanism where the $U(1)_F$ flavor symmetry is gauged and we thereby end up with a "quality axion" as the result of a residual $U(1)_{PQ}$ symmetry. This is achieved in a DFSZ like scenario with a "Flavon" field of the gauged $U(1)_F$ in addition to the PQ scalar. We find that, demanding a favorable mass texture compatible with SU(5) embedding, the charges we require to cancel the anomalies naturally provide us an accidental quality axion whose scale is connected to the scale of right number of right the model at the E949, E787 and CLEO experimental constraints on the FV vector axion quark couplings.

Authors: BABU, Ks (Oklahoma State University); CHANDRASEKAR, Sai Charan (PhD Student at Oklahoma State University); TAVARTKILADZE, Zurab

Presenter: CHANDRASEKAR, Sai Charan (PhD Student at Oklahoma State University)

Session Classification: Beyond the Standard Model Phenomenology 2