Contribution ID: **112** Type: **Oral**

Implications of chiral symmetry on positive parity heavy-light meson spectroscopy

Thursday, 6 June 2019 11:10 (22 minutes)

It is demonstrated that,if the lightest positive parity charm mesons are assumed to owe their existence to non-perturbative GoldstonebosonD/D^* scattering, various puzzles in the charm meson spectrum get resolved. Most importantly the ordering of the lightest strange and non-strange scalars becomes natural. It is demonstrated that the amplitudes for Goldstone boson-D/D^* scattering are fully consistent with the high quality data on decays $B^- \to D^+\pi^-\pi^-$, $B_s^0 \to \bar{D}^0 K^-\pi^+$, $B^0 \to \bar{D}^0\pi^-\pi^+$, $B^- \to D^+\pi^- K^-$ and $B^0 \to \bar{D}^0\pi^- K^+$, provided by LHCb. The results provide a strong support of the scenario that the broad scalar charmed meson $D_0^*(2400)$ should be replaced by two states, the lower one of which has a mass of around 2.1 GeV, much smaller than that extracted from experimental data using a Breit–Wigner parameterization. It implies that the lowest positive-parity charm mesons are dynamically generated rather than quark-antiquark states.

Collaboration name

Primary author: DU, Meng-Lin (HISKP, University of Bonn)

Presenter: DU, Meng-Lin (HISKP, University of Bonn)

Session Classification: Flavor and Precision Physics

Track Classification: Flavor and Precision Physics