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Chiral symmetry breaking: Current experimental status and prospects

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Chiral symmetry, linked to the smallness of the quark masses compared to the QCD bound states, and its breaking pattern are exploited in effective field theory to describe a multitude of phenomena by a few low-energy constants. Those concern light-meson dynamics and decays, their couplings to photons and meson-nucleon interactions. Special emphasis is given to the pion properties, in terms of pion-pion low-energy scattering, the pion polarizability and the chiral anomaly, which describes the coupling of three pions to a photon. These properties are studied by the COMPASS collaboration at CERN since first data taking with pion beams in the year 2004, and several following campaigns. In the framework of the upcoming AMBER collaboration, it is planned to extend the studies to the kaon sector.

Scientific topic

Symmetries and Interactions

Author: FRIEDRICH, Jan (Technische Universitaet Muenchen (DE))

Presenter: FRIEDRICH, Jan (Technische Universitaet Muenchen (DE))

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