Analysis of the decay $\eta' \to \pi^+\pi^-\eta$ with KLOE and KLOE-2

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The decay $\eta' \to \pi^+\pi^-\eta$ is an unique system to study $\pi\pi$ and $\eta\pi$ interactions at low energies. The quantum numbers of the final state particles especially allow for contributions of the scalar resonances f_0 and a_0 [1]. Furthermore, it allows to test the predictions of chiral perturbation theory (ChPT) and its non-perturbative and perturbative extensions, like Large N_c ChPT and Resonance ChPT [2-4]. In order to scrutinize the different predictions, high statistics Dalitz plot analyses of the decay $\eta' \to \pi^+\pi^-\eta$ are called for.

The KLOE experiment, located at the DAΦNE e^+e^- collider, has collected 2.5 fb^{-1} of data on the ϕ meson peak. It is planned to increase the data set with the upgraded KLOE-2 detector to 20 fb^{-1} within the next years. η' mesons are produced in the radiative decay $\phi \to \gamma\eta'$. In this presentation the analysis of the data with respect to a Dalitz plot for the decay $\eta' \to \pi^+\pi^-\eta$ is discussed.

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