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Light meson spectroscopy at BESIII

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The unambiguous identification and systematic study of bound states beyond the constituent quark degrees of freedom, e.g., multiquark states or states with gluonic degrees of freedom (hybrids, glueballs) would provide validation of and valuable input to the quantitative understanding of QCD. Hadron spectroscopy is one of the most important physics goals of BESIII. Since 2009, BESIII has collected $1.3 \cdot 10^8$ J/ψ and $0.41 \cdot 10^8$ of ψ' , which are the world's largest data samples of J/ψ and ψ' from e^+e^- collision. Radiative decays of charmonium provide a gluon-rich environment and are therefore regarded as one of the most promising hunting grounds for gluonic excitations. Significant progresses in the light-quark sector have been made with the unprecedented high statistics data sets. Several recent results on light hadron spectroscopy and light hadron decays will be reported, including:

1, the observation of the anomalous line shape of $X(1835)$ near pp mass threshold and related studies; 2, studies of glueballs in J/ψ radiative decays; 3, search for 1^- exotic in $\chi_{c1} \rightarrow \eta \pi \pi$.

Experimental Collaboration

BESIII

Presenter: DE MORI, Francesca (INFN - National Institute for Nuclear Physics)

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