

# $\eta$ and $\eta'$ mesons production at COSY-11

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A low emittance and small momentum spread of the proton and deuteron beams of the Cooler Synchrotron COSY combined with the high mass resolution of the COSY-11 detection system permit to study the creation of mesons in the nucleon-nucleon interaction down to the fraction of MeV with respect to the kinematical threshold. At such small excess energies, the ejectiles possess low relative momenta and are predominantly produced with the relative angular momentum equal to zero. Taking advantage of these conditions we have performed investigations aiming to determine the hadronic interaction of  $\eta$  and  $\eta'$  mesons with nucleons and nuclei. During the presentation ongoing studies of the isospin dependence for the production of the  $\eta$  and  $\eta'$  mesons in free and quasi-free nucleon-nucleon collisions as well as the search for a possible bound state of the  $\eta$  meson with the nucleus of helium will be addressed.

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