

Potential of the COSY-11 facility

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One of the main goal of the COSY-11 collaboration is to study the eta meson interaction with nucleons and the mechanism of the η production in different isospin channels. Over the last few years, we have performed several experimental investigations on the close to treshold η production in nucleon-nucleon collisions using unpolarized as well as polarized beam. Experiments of the $pp \rightarrow pp \eta$, $pd \rightarrow pd \eta$ and $pn \rightarrow pn \eta$ are based on the four-momentum registration of outgoing nucleons and nuclei. η meson is identified via the missing mass technique.

The internal facility COSY-11 [1] installed at the Cooler Synchrotron COSY [2] is shown in the figure below.

Results of the performed measurements and the details of the experimental method can be found in references [3].

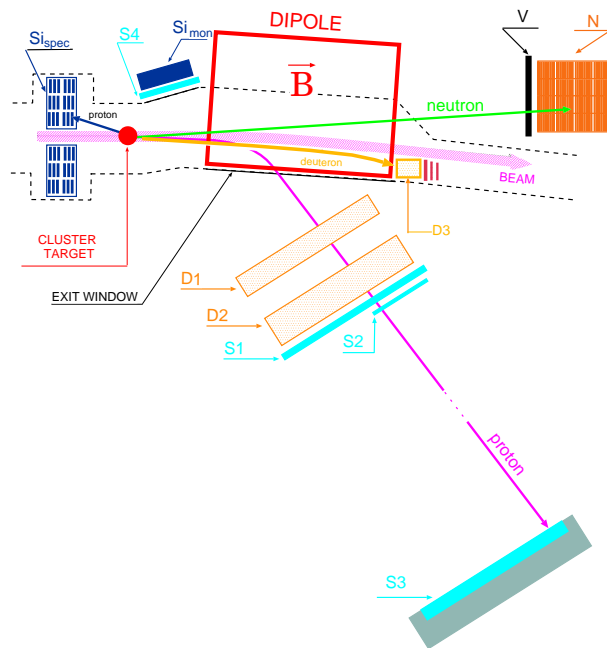


Figure 1: Scheme of the COSY-11 detection system. Protons are registered in two drift chambers $D1$, $D2$ and in the scintillator hadrosopes $S1$, $S2$, $S3$. An array of silicon pad detectors (Si_{spec}) is used for the registration of the spectator protons. Neutrons are registered in the neutron modular detector (N). In order to distinguish neutrons from charged particles veto detector is used. Deuterons are registered in deuteron chamber $D3$.

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