

ηn scattering length from the reaction $\gamma d \rightarrow p\eta n$ at $E_\gamma \sim 0.9$ GeV

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A new η photoproduction experiment is planned for the determination of the η - n low-energy scattering parameters at the Research Center for Electron Photon Science (ELPH), Tohoku University. The emitted proton is measured at 0 degrees for the $\gamma d \rightarrow p\eta n$ reaction at $E_\gamma \sim 0.9$ GeV, which gives the zero relative momentum between the η meson and the neutron. Two photons from the η -meson are measured using an electromagnetic calorimeter, FOREST. The detection of the η meson is expected to select the condition $\eta n \rightarrow \eta n$. Prospects of the planned experiment to determine the ηn scattering length will be discussed.

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