

## Production of S=-2 systems near the threshold in the $^{12}\text{C}(K^-, K^+)X$ reaction at 1.8 GeV/c

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While studying the double  $\Lambda$  hypernuclei and  $\Xi^-$  hypernuclei is essential in further understanding baryon-baryon interaction with S=-2 systems, experimental data still need to be provided. Several earlier experiments, such as KEK-PS E373 and J-PARC E07, reported possible attractive  $\Xi^-$ -nucleus interaction from bound  $\Xi^-$  hypernuclear states.

Recently, the E42 experiment which has a primary goal to search for an H-dibaryon collected 300K  $^{12}\text{C}(K^-, K^+)X$  reaction events in the ranges of  $\theta_{K^+} < 25^\circ$  and  $p_{K^+} > 0.5$  GeV/c via 1.8 GeV/c  $K^-$  beam at the J-PARC. A large time-projection chamber (HypTPC) highlights the E42 detector, facilitating a charged particle reconstruction for subsequent decays of the double-strangeness system produced near the threshold region in the  $^{12}\text{C}(K^-, K^+)X$  reaction. Therefore, the E42 data would first measure all decay channels involving charged particle emission from  $^{12}\text{C}(K^-, K^+)X$  reaction with high statistics.

This talk will present the preliminary results of the J-PARC E42 experiment.

### Parallel Session

Hadron Spectroscopy

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