

Search for the H-dibaryon near $\Lambda\Lambda$ and Ξ^-p thresholds at J-PARC

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Recent Lattice QCD predictions for the mass of H-dibaryon pointing to the mass region near $\Lambda\Lambda$ and Ξ^-p thresholds encourage experimental searches. A dedicated experiment (J-PARC E42) has been prepared for hunting the H-dibaryon close to $\Lambda\Lambda$ and Ξ^-p thresholds. The experiment was designed to measure $\Lambda p \pi^-$, $\Lambda\Lambda$ and Ξ^-p decays from the H-dibaryon in the $^{12}\text{C}(K^-, K^+)$ reaction at the K1.8 beam line of J-PARC. A new superconducting spectrometer (Hyperon Spectrometer) is now under commissioning, consisting of a conduction-cooled superconducting dipole magnet and a time projection chamber. This talk will review our new attempt to find evidence supporting the existence of the H-dibaryon in the wide mass region as well as the current status of the Hyperon Spectrometer.

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