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Search for H-dibaryon with Hyperon spectrometer at J-PARC KENICHI IMAI, Japan Atomic Energy Agency — Recent Lattice QCD calculations have suggested a possible existence of H-dibaryon near the $\Lambda\Lambda$ threshold. In the previous experiments at KEK-PS, a hint of peak structure was observed in the $\Lambda\Lambda$ invariant mass spectrum at just above the $\Lambda\Lambda$ threshold. An experiment to search for H-dibaryon through $\Lambda\Lambda$ and $\Lambda\pi$-p mass spectra was proposed at J-PARC (E42). Much better statistics and mass resolution than the previous data are expected. For this experiment, we have been constructing a novel hyperon spectrometer with use of a GEM-TPC and a superconducting Helmholtz magnet. The expected performance of the spectrometer and the proposed experiment is reported based on the R&D results of the TPC and simulations. Possible physics with the hyperon spectrometer other than the H-dibaryon is also discussed.

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