Study of $S = -2$ Nuclear System by Emulsion and Scintillating Fiber Hybrid Method (PS-E373)

The E373 experiment is searching for the system with double strangeness, double-Λ hypernuclei and H-dibaryon. The existence of H-dibaryon is investigated from the mass of two Λs inside nucleus. Therefore, it is important to measure the binding energy of two Λs inside nucleus via the mass mmeasurement of double-Λ hypernuclei. Recently, we achieved about 60% analysis of the data, and the third candidate event with sequential decay topology like double-Λ hypernuclei which is under analysis. On the other hand, we have succeeded to estimate our yield for Ξ^- stopping events by using rich data of the events which have decay and stopping topologies in the emulsion. We understood that there is nothing background events for Ξ^- particles in the decay events and nearly 4% events in the stopping ones with some emitted tracks. By these studies, we confirmed that the E373 experiment provides us 10^3 Ξ^- stopping events or more.

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