Kinematical analysis of $\Xi^-$ hyperons stop event in KEK-E373 experiment HIROYUKI NAKAMURA, Gifu-University, KEK-PS E373 COLLABORATION — The purpose of the E373 experiment is to study $S=-2$ nuclear systems with hundreds stopping events of $\Xi^-$ hyperons. $\Xi^-$ hyperon is captured in the emulsion, interacts with a proton, and two $\Lambda$ hyperons are produced, in usual. In this experiment, we found NAGARA event that was identified as the production and decay of $^6_{\Lambda\Lambda}He$ among seven candidate events of double hypernucleus. We found several hundreds’ events showing the emission of charged particles at the $\Xi^-$ stopping points. Among them, there are two events having very characteristic decay topology. Only two charged particles were emitted from $\Xi^-$ hyperon capture point, and one of those particles associated with an energetic charged particle. By the kinematical analysis, one event was identified as a non-mesonic decay of $\Lambda^4H$, and another one is probably a decay of $\Sigma^-$ hyperon which is produced by week interaction between double strangeness.