

# Event Analysis in Nuclear Emulsion for the E07 Experiment

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Nuclear emulsion is the best detector to study double lambda hypernucleus, which is short life nucleus with double strangeness. The E07 experiment [1] will be carried out for beam exposure at J-PARC to search for double strangeness systems with use of Emulsion counter hybrid method. We expect to analyze nearly  $10^2$  or more double hypernuclei and  $\sim 10^8$  single hypernuclei in the E07 experiment.

For the J-PARC E07 experiment, many experimental roles have already been prepared. Mass production of the emulsion plate has been finished. Continuously we are preparing techniques in event scanning, event analysis, and so on with very high speed to provide the information of double strangeness systems in a suitable time.

We establish analysis system for E07 with use of typical events detected by overall-scanning method [2] applied for the E373 emulsion. As shown in Fig. 1, events with hammer tracks and single hypernucleus are very good samples to validate event analysis. Regarding hammer track events, the parent nucleus mass should be reconstructed to be  $^8\text{Be}^*$  nucleus with the application of kinematic fitting [3], because two alpha particles are visible in the emulsion.

In this poster, it will be discussed for the event analysis with kinematical fitting applied for hammer tracks and single hypernuclei.

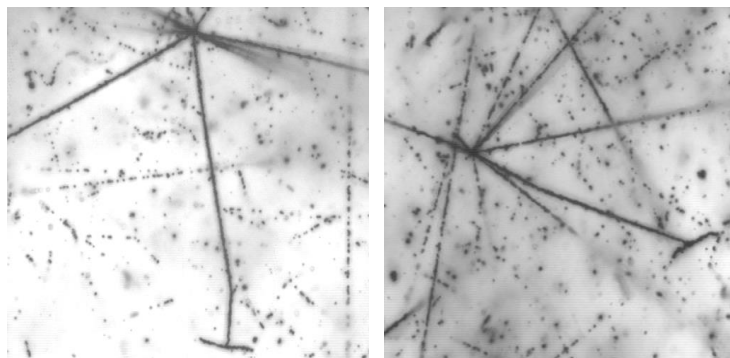


Fig. 1. Event with hammer track detected with over-all scanning method

## References

- [1] K. Imai et al., [http://j-parc.jp/researcher/Hadron/en/pac\\_0606/pdf/p07-Nakazawa.pdf](http://j-parc.jp/researcher/Hadron/en/pac_0606/pdf/p07-Nakazawa.pdf)
- [2] J. Yoshida et al., JPS Conf. Proc. 1, 013070 (2014)
- [3] Paul Avery, CBX 91-72, October 18, 1991, "Applied Fitting Theory I, General Least Squares Theory"