

Abstract Submitted
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A tight-alignment method of emulsion position using beam tracks to study double hypernuclei YOSHIAKI NAKANISHI, Gifu University, E07(J-PARC) COLLABORATION — In the KEK E373 experiment, there occurred misalignment of emulsion plates. This ratio was about 3% for tracking of $10^4 \Xi^-$ hyperon candidate. Since number of double hypernuclear event is at most 10^2 for $10^5 \Xi^-$ hyperon tracks in the E07 experiment at J-PARC, it is quite important to develop a tight-alignment method. The method needs local calibration of emulsion positions. Therefore, we check pattern of the large amount of beam tracks which penetrate vertically emulsion plate. To do so, beam tracks should be detected at first with use of image-processing technique by taking pictures of the emulsion moving focal plane under the microscope. First step of processing is binarizing the emulsion images by applying a threshold value. Second step is summing up the all binary images and binarizing the summed image by another threshold. Thus, there are two threshold variables. We change the values of the two and check the success ratio of beam detection. Then we got the optimum values and found about 5 tracks in one position (view size: $4000 \mu m^2$). These beam tracks are detected in another plate, it is expected that position alignment between two emulsion plates shall be carried out with $1 \mu m$ accuracy.

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