

Planning and Coordination

MACHINE TIME EXECUTION

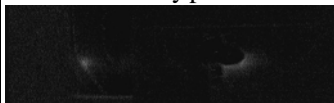
REPORT (2005-4-2 CYCLE)

Experimental Group	T590	Reporter	S. Sawada
Scheduled Period and Shift	11/28&12/5 1700-2100, 12/7 0900 – 12/12 0900, total 3 shifts with our own beam handling	Main, Sub, Para	Sub.

Experimenters: S.Sawada, I.Endo, T.Takahashi, M.Iinuma, S.Strokov, K.Ueda, H.Kuroiwa, T.Ohnishi, V.Biryukov, Y.Chesnokov

SUMMARY OF EXECUTION AND RESULTS

We tried to demonstrate that a part of the primary 12-GeV beam can be bent and separated by a bent crystal. A Silicon crystal whose bent angle was about 37 mrad was mainly used. The experimental setup was located in between the K2D1 magnet and the beam dump of the EP2-A line. Our crystals were located just after the K2D1 magnet, and the screens to monitor the primary and bent beam were located about 147cm downstream. The experiment was performed with a proton beam of about 1.1×10^{12} /spill. For less than three shifts in total, the EP2-A line was tuned so that the beam size at our crystal and the downstream screens were minimized. Only in these cases, we could observe the bent beam. A typical example of our observation is shown in the photograph below.



This is a result of a kind of background subtraction, and you can see a bent beam in its left half in addition to a silhouette of the main primary beam in the right. Data on angle dependence etc. were also taken, and we will analyze these data to understand bending beams by crystal channeling.

EXECUTED MACHINE TIME, BEAM CONDITION, DOWN TIME etc.

The experiment was performed with a typical intensity of 1×10^{12} /spill with the A/C mode. The accelerator performance was good.

COMMENTS

We appreciate very much various kinds of help from the beam channel group and the counter hall group. We also appreciate understanding and patience of the other experiments (E567 and E391a) who allowed us to use the beam with our own tuning conditions, while they suffered significant reduction of beam intensity or almost no beam during the periods.