

Magnet Sorting Algorithms for the SRRC EPU5.6, C.H. CHANG, T.C. FAN*, IAN HSU*, C.S. HWANG, CH. WANG, SRRC - After a prototype of Sasaki-type elliptically- polarizing undulator, EPU5.6 has been tested, the fabrication of the full-size one is undergoing. Formerly the cross-section NdFeB blocks was designed as a square of 40 mm x 40 mm with cutting on one pair of opposite angles on each square face for rigid clamping. During magnetic field measurement, we found that the good field region at the electron beam axis is too small and too sensitive to the relative movement of arrays of magnets. To solve this, the block shape has been changed into a 40 mm (width) x 31 mm (height) with a 0.5 mm protrusion at the edge close to beam axis. As a result, the symmetry of rotation in sorting of the magnets magnetized normal to the large face is broken. On the other hand, even the perturbation of the field from the shifting of rows was taken into account, the detail field distribution of each magnet block is recognized to be responsible for the phase deviation and high harmonic of the magnetic field. Therefore the authors modify the sorting algorithm used in prototype EPU [1] as to be presented.

* Also, Department of Atomic Science, National Tsing Hua University, Hsinchu, Taiwan, ROC.

[1] T.C. Fan et al, "Magnet Sorting Algorithms for a Prototype of the SRRC EPU", PAC97.