

Magnet Alignment and Closed Orbit Distortion of the SPring-8 Storage Ring, N. KUMAGAI, S. MATSUI, K. TSUMAKI, C. ZHANG, JASRI; J. OHNISHI, RIKEN - The SPring-8 is a 8 GeV synchrotron radiation source with 1436 m circumference and magnet lattice is the double bend achromat (DBA) type. In a cell the DBA lattice has two bending magnets and three short straight sections where quadrupole and sextupole magnets are placed. We noticed that if we treat the quadrupole magnets in a short straight section as a unit and align the magnetic center of the magnets in a unit precisely, closed orbit distortion can be reduced substantially, even if the misalignment between the units are large [1]. In the SPring-8 storage ring, we placed the quadrupole and sextupole magnets in a straight section on a girder and aligned their magnetic center precisely on a straight line. In a commissioning process we could circulate and store the beam without orbit correction. The measured closed orbit distortion was less than 5 mm and agreed very well with the expected one which was calculated from the alignment data.

- [1] K. Tsumaki, H. Tanaka and N. Kumagai, Proc. of the IEEE Particle Accelerator Conference, San Francisco, USA, May, p. 1698 (1991).