Thermal Deformation of the Magnet Girder and its Solution at the SRRC Storage Ring

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Abstract

The thermally-induced deformation of the magnet girder has been observed to induce positional changes of the magnet and the beam position monitor (BPM) on the order of microns. This work investigates the deformation mechanisms. Methods for reducing the deformation are also proposed and applied in the storage ring. The improvement reduced the deformation of the girder by more than five times. A sensitive beam position and intensity monitor in the beamline was also used to verify the improvement.

Keywords: thermal deformation, magnet girder

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