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An Eigenfrequency Wire Alignment System under Development for Magnet Fiducialization

The magnets of the SPring-8 storage ring have critical alignment tolerances. And, in the phase of magnetic field measurement, the positions of the fiducial points on magnets usually need to be precisely calibrated relative to magnetic center. We have been used the laser CCD-camera system for the calibration. Recently, in renewing the magnetic field measurement device, an eigenfrequency wire alignment system (eWAS) is attempted to do the fiducialization in view of followings. It makes almost simultaneous measurements for a group of points. It is easy to make continuous measurement and record the positional change due to the variation of magnet current. And, the measurement is less influenced by working environments such as room temperature or airflow. The system in developing is composed of four WPS sensors which are well used in alignment, combined with the carbon wire, and vibration measurement devices. Aim of this alignment system is to calibrate the magnet fiducials with an accuracy of ± 10 μm .

Summary

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