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Alignment and Stability of the TPS Storage Ring Auto-Tuning Girder System

An auto-tuning girder system for the Taiwan Light Source (TPS) storage ring had been designed and established to align the girders quickly also precisely with only few manpower. During the installation period, with the survey network data from the lasertrackers, this girder system demonstrated the ability and met the design requirements. Including the testing run, with only 4 times tuning, the storage ring girders were aligned within $\pm 0.5\text{mm}$ precision and the first light was seen in few days after commissioning started. Within one year commissioning period afterward, several survey works had been carried out and the data show that the girder system is quite stable even suffered with some earthquakes. This paper describes the girder system and survey data in detail.

Summary

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