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Integrated Hall probe and stretched wire measurement system for an in-vacuum undulator

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Taiwan Photon Source (TPS) is a 3 GeV synchrotron light source at the National Synchrotron Radiation Research Center (NSRRC) in Taiwan. Several in-vacuum undulators are expected to be installed before the end of 2024. Before installation in the storage ring, an in-vacuum undulator's magnetic field has been measured at operational gaps. In order to assess the performance of the in-vacuum undulator, we integrated two measurement methods in the vacuum chamber: one is the SAFALI (Self Aligned Field Analyzer with Laser Instrumentation) system to measure the magnetic field, and the other is the stretched wire system to measure the magnetic field integral. In this work, we designed a stretched wire measurement system integrated with the SAFALI system inside the vacuum chamber. This measurement system was applied to the in-vacuum undulator with a period of 22mm and a magnetic length of 2 m.

Footnotes

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Region represented

Asia

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