



Contribution ID: 384 Contribution code: TUPG66

Type: **Poster Presentation**

The online undulator magnetic field measurement system at SSRF

Tuesday, 21 May 2024 16:00 (2 hours)

The undulator is the core device for producing high energy synchrotron radiation light in Synchrotron Radiation and Free Electron Laser facilities. The long-term operation of the undulator is bound to be damaged by radiation. Furthermore, this radiation damage leads to the reduction or even demagnetization of the magnetic field, directly affecting the electron beam's operating state and the light's performance and stability. This magnetic measurement system aims to monitor the magnetic flux change to obtain the undulator's local magnetic field disturbance or decay. Moreover, it provides insights into phase errors and electron trajectories by estimating the half period magnetic field integrals for each magnetic pole. The measurement results on the undulator at SSRF are detailed.

Footnotes

Funding Agency

Paper preparation format

Region represented

Asia

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Session Classification: Tuesday Poster Session

Track Classification: MC2: Photon Sources and Electron Accelerators: MC2.T15 Undulators and Wigglers