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Status of elliptically polarized undulator at NSRRC

Wednesday 4 June 2025 16:00 (2 hours)

Since the completion of Taiwan Photon Source (TPS) commissioning in 2015, we have developed and constructed nine APPLE-II undulators of various designs to provide users with soft X-ray sources, particularly for circularly polarized light. To optimize the use of straight-section space, the lengths of the APPLE undulators range from 4.4 to 0.8 meters to accommodate installation constraints. Additionally, an APPLE undulator capable of tapering up to 2 mrad has been developed to meet the spectral demands of broad bandwidth. In pursuit of EPU designs suitable for operation in low-emittance accelerators, we have initiated studies on closed-gap EPUs and constructed as well as experimentally validated a novel insertion device, known as the THU, capable of delivering strong circularly polarized magnetic fields. Moreover, we are also developing a closed-gap type undulator combining electromagnets with permanent magnet structures to generate time-varying magnetic fields, enabling rapid switching of circularly polarized light.

Footnotes

Paper preparation format

Word

Region represented

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