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Development of an elliptically polarizing X-type undulator for fourth generation light sources

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The Advanced Light Source (ALS) at the Lawrence Berkeley National Laboratory (LBL) is going through an upgrade (ALS-U), where the ALS triple-bend achromat is replaced by a nine-bend achromat storage ring (SR) with on-axis injection using beam swapping from a triple-bend achromat accumulator ring (AR). The small beam size at the straight sections of the ALS-U has opened the possibility to use small-diameter circular vacuum chambers for insertion devices. An elliptically polarizing X-type undulator with a small circular vacuum chamber and symmetric placement of the magnet rows around the vacuum chambers is being developed at LBL. This type of undulator is suitable for the ALS-U and other fourth generation light sources. Salient features of the X-type undulator include the mechanical construction with compact crossed roller bearings and fully hydraulic motion control system. These are described together with a status report of the progress of the prototyping work.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Yes

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