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Status of cavity-based X-ray free electron laser project at SLAC

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Cavity-based X-ray free electron laser (CBXFEL) is the proposed scheme to dramatically improve stability and coherence of the existing XFELs. A project to demonstrate proof-or-principle CBXFEL is underway at SLAC National Accelerator Laboratory, in collaboration with Argonne National Lab (ANL, USA) and RIKEN Research Institute (Japan). CBXFEL is expected to operate at 9.831 keV photon energy, using synthetic diamonds as cavity Bragg mirrors. LCLS copper linac will deliver two electron bunches 624 RF buckets apart, resulting in the total X-ray cavity size of about 65500.87 mm. In this proceeding, we present the final design of the X-ray cavity, including photon and electron beam subsystems, and report on projected performance and current installation status.

Footnotes

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North America

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