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Recent developments of the cSTART project

The combination of a compact storage ring and a laser-plasma accelerator (LPA) can serve as the basis for future compact light sources. One challenge is the large momentum spread (about 2 %) of the electron beams delivered by the LPA. To overcome this challenge, a very large acceptance compact storage ring (VLA-cSR) was designed as part of the compact STorage ring for Accelerator Research and Technology (cSTART) project. The project will be realized at the Karlsruhe Institute of Technology (KIT, Germany). Initially, the Ferninfrarot Linac- Und Test-Experiment (FLUTE), a source of ultra-short bunches, will serve as an injector for the VLA-cSR to benchmark and emulate LPA-like beams. In a second stage, a laser-plasma accelerator will be used as an injector, which is being developed as part of the ATHENA project in collaboration with DESY and the Helmholtz Institute Jena (HIJ). The small facility footprint, the large-momentum spread bunches with charges from 1 pC to 1 nC and lengths from few femto- to few picoseconds pose challenges for the lattice design, RF system and beam diagnostics. This contribution summarizes the latest results on these challenges.

Speed Talks

Normal

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