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Simulation study on attosecond bunch generation using reversed chicane at Argonne Wakefield Accelerator (AWA)

Capability for generating an attosecond bunch can provide interesting opportunities to wakefield accelerator research. We have been studying requirements and challenges in beam dynamics to produce an attosecond bunch using an existing beamline at Argonne Wakefield Accelerator (AWA) facility. One unavoidable limitation of this study is that conventional C-typed chicane is not available. Thus, a modified version of a chicane-like compressor, called a reversed chicane, is designed and running at the AWA facility. AWA's injector and beamline were simulated using ASTRA and ELEGANT respectively. The study provided guidance toward the attosecond bunch generation. We present the simulation results and propose the modified design and operation conditions to generate the attosecond bunch at AWA facility.

Footnotes

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