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## **Atto-second bunch generation using reversed chicane at Argonne Wakefield Accelerator (AWA)**

Attosecond bunch generation may play a key role in many scientific applications, such as providing high temporal resolution for ultra-fast electron diffraction and mitigating beam-beam effects in linear colliders. Recently, we have started studying the feasibility of generating an attosecond bunch and its high-resolution measurement using the existing Argonne Wakefield Accelerator(AWA) facility to understand its dynamics and challenges. Currently, both ballistic bunching and c-type chicane are not available at the AWA facility. Thus, we have adopted a slightly different version of a chicane compressor, which is called a reversed chicane, for the experimental study without impacting the existing beamline. We have designed the reversed chicane for the AWA facility and confirmed its capability of bunch compression using simulations. Further simulation studies have been carried out to confirm the feasibility of experimental demonstration of attosecond bunch generation. Simulations have been done using ASTRA for the injector and ELEGANT for the reversed chicane. We present preliminary simulation results.

### **Working group**

WG5 : Beam sources, monitoring and control

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