Joint DESY and University of Hamburg Accelerator Physics Seminar

Tuesday, 21.07.2020 16:00

ZOOM video seminar (needs version 5.0+)

Experience with High Charge Photoinjector Operation at the Argonne Wakefield Accelerator Facility

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ANL

Abstract

Abstract: The Argonne Wakefield Accelerator (AWA) operates the world's highest charge per bunch RF photoinjector, approximately 100 nC per bunch at a peak current of approximately 25 kAmps. L-band bunch trains of 8 bunches of 80nC each have also been produced with a charge of 660 nC in about 6ns. Various cathodes have been used to generate these bunch over the history of the AWA, such as Cu and Mg, but, since 2005, the AWA grows and installs its own large-diameter, Cesium Telluride photocathodes for use in the AWA drive gun. The AWA has also conducted fundamental studies of cathodes under high gradient using a dedicated RF test stand, the Argonne Cathode Test-stand (ACT). We will report on design choices and operational experience with high charge operation of an L-band RF photoinjector.

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