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Cold integration of the DESY CW L-band SRF gun cavity with Cu photocathode

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A future upgrade of the European XFEL aims for operation in a high-duty-cycle regime. The baseline electron source for the photoinjector is a continuous wave (CW) L-band superconducting radio frequency (SRF) gun cavity developed at DESY. Recently, this gun cavity with a copper (Cu) cathode mounted directly onto the backwall via threaded connections demonstrated world record peak axial electric field values of up to 50 MV/m. In this contribution, we report on the present status of the gun cavity design, describe the cold integration of the photoinjector cavity including the cryostat, tuner and solenoid magnet, and show the plans for a test stand facility to verify the beam quality produced by this SRF gun.

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Yes

Footnotes

Funding Agency

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